This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

Usage guidelines

Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

We also ask that you:

+ *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.

+ *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.

+ *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.

+ *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

About Google Book Search

Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at `http://books.google.com/`

MANUAL OF
PLANTERSHIP
IN
BRITISH GUIANA.

A

MANUAL OF PLANTERSHIP
IN
BRITISH GUIANA,

AS IT HAS HERETOFORE BEEN PRACTISED, AND AS
IT IS AT PRESENT IN OPERATION;

WITH SOME

SUGGESTIONS FOR IMPROVEMENT ON THE
PRESENT PRACTICE.

By ALEXANDER MAC RAE,
A RESIDENT PLANTER IN THAT COLONY FOR HALF A CENTURY.

BIBLIOTHECA BODLEIANA

LONDON:
SMITH, ELDER & CO., 65, CORNHILL.

1856.

191. l. 31.

TO

HIS EXCELLENCY

PHILIP EDMOND WODEHOUSE,

GOVERNOR AND COMMANDER-IN-CHIEF IN AND OVER THE COLONY OF

BRITISH GUIANA,

VICE-PATRON

OF THE ROYAL AGRICULTURAL AND COMMERCIAL SOCIETY
OF BRITISH GUIANA,

THIS WORK IS RESPECTFULLY DEDICATED

BY

THE AUTHOR.

PREFACE.

IN submitting this work to the public, but more particularly to the inhabitants and proprietory body of British Guiana and the colony of Surinam, the Author begs to disclaim all pretensions to any high scientific acquirements: he merely professes to give a simple practical detail of his own experience as a Planter, and to offer suggestions deduced therefrom, with a view to the introduction of what he considers to be some improvement on the present system.

This treatise will necessarily be mainly confined to the general management of estates, the cultivation of, and manufacture from, the sugar cane, which forms the staple product of the colony at present. The cultivation of coffee and cotton will be briefly noticed, with some remarks as to character of soil, levels of land, climate, geographical position, statistics, &c.

A MANUAL

OF

PLANTERSHIP IN BRITISH GUIANA,

&c. &c.

THE colony of British Guiana is situate on the continent of South America; according to Schomberg, between the latitudes of 8° 40′ N., and 3° 30′ S., between the longitudes 50° and 68° W. It is bounded to the north by the Atlantic Ocean, on the south by the empire of Brazil, to the east by the colony of Surinam, and to the west by the Republic of Venezuela, containing an area of about 100,000 square miles. Within its boundaries are three large rivers, viz., the Essequebo, about 18 miles wide at its mouth; the Demerary, about one mile in breadth at its entrance from the Atlantic; and the Berbice River, about the same width as the Demerary. The principal harbour is near the mouth of the Demerary River, where, on the east bank of that stream, the capital of the province, the city of George Town, is built, which, with its suburbs, contains about 30,000 inhabitants. The colony generally has a population of about 120,000 souls, of a very mixed character, viz., European and Creole whites, native and African blacks, Hindoo coolies, and natives of Madeira, with a few Chinese.

The River Berbice is resorted to by shipping as well as the Essequebo: the former mainly for the convenience of a few proprietors in that county, for the transport of their produce and supplies; the latter merely for the transport of timber to the British market, the great bulk of the produce of the colony being shipped from the port of George Town, which employs annually about 140,000 tons of shipping.

The climate of this colony is not considered to be favourable to the health of Europeans, although in this respect it has got a much worse name than it deserves: negroes and coolies enjoy the best of health here. The thermometer in the shade ranges from 74° to 93°, the average being about 82° of Fahrenheit; in the sun at noon, the thermometer rises to 125° of Fahrenheit.

The soil throughout the cultivated portion of the country is almost exclusively alluvial, and the cultivation only extends to a small margin along a portion (say about one-fourth) of its alluvial coast, and for about 10 miles along the banks of the rivers; save only a few estates at a greater distance up the Berbice River. This margin, irregularly cultivated in canes and provisions, may contain in all about 68,000 acres.

The exports of the colony in 1854 amounted to about 56,000 hhds. of sugar, 30,000 puncheons of rum and molasses, and about 150,000 cubic feet of hardwood timber; besides minor articles, such as charcoal, fuel wood, &c., value in all about 1,500,000*l*. The imports are valued at 1,000,000*l*.

The labourers employed in the cultivation of the sugar-cane, and the manufacture of sugar and rum, may amount to about 25,000; of these about three-eighths are coolies, half Creoles and African blacks, and about one-eighth Portuguese and Chinese; but these people, the coolies in particular, do not on an average perform more than three days of industrious labour every week; the rest of their time is consumed in idleness and debauchery. No doubt a natural disposition to indolence is engendered by the climate; and, unfortunately, these people, more particularly the coolies and blacks, are not sufficiently imbued with a sense of moral obligation to enable them to overcome this natural disposition to idleness, the great impediment to tropical prosperity.

With these preliminary observations, I shall now commence my task regarding practical Plantership. In the outset, it is necessary for me to state, for the proper understanding of much that follows, that all the land used for cane cultivation along the coast of the colony, and the main part of that cultivated along the banks of the rivers, is a perfect flat, from 3 feet to 4½ feet below the level of high-water mark spring tides; the rise and fall of the tide at springs amounting to about 9 feet. Owing to this low level of the land, the cultivation has to be protected from inundation from the sea, as well as from the periodical inundations from rains in the interior. This is done by strong dykes or dams, which surround the cultivation of each estate, the estates being laid out in oblong squares. With lands so circumstanced, and subject to very heavy periodical rains, amounting occasionally to a fall of as much as 6 inches in twenty-four hours, it will be at once seen that the establishment of good drainage must be the foundation on which a good cultivation can alone be based; and this is a matter attended with some difficulty and much expense of labour, where the outfall is so scant. Many estates on the coast (where, from various causes, they are liable to external obstructions to drainage, from the formation of banks of mud, shells, or sand) have found it necessary to employ draining-machines worked by steam power, to raise the water sufficiently to force its way over these banks; these machines are from 25 to 60-horse power, according to the extent of cultivation. Appold and Bessimère's centrifugal machines are used, as well as the ordinary scoop wheel; but none of the engines hitherto in use here are of sufficient power to discharge the water with the necessary rapidity during the heaviest weather, unaided by the ordinary means of drainage by sluices and kokers; to do this it would, in my opinion, require 10-horse power to every hundred acres to be drained.

I have given much attention to the practicability of establishing thorough drainage in this colony, and was appointed convener of a committee, associated with the late Dr. Shier and John Gordon, Esq.; the former an agricultural chemist, and thoroughly well acquainted with the system of thorough drainage as practised in Great Britain. This committee was appointed by the Legislature of the colony, to carry out a system of thorough drainage for cane cultivation on a field of about six acres, on plantation "La Penitence," at the expense of the colony. The field was tile-drained with three-inch tube tiles, laid in drains 15 feet apart, running from the inner end of the field to a reservoir at the outer end, adjoining the main draining trench of the estate, but separated from it by a dam. The distance from the one end of the field to the other was about 45 roods Rhyland's measure, and the fall given to the tiles about 10 inches in that distance; they having been placed 20 inches under the surface of the land at the upper end of the field, and 30 inches at the lower end or reservoir. There was a four-horse high-pressure steam-engine employed to pump the water received in the reservoir from the tiles, into the side line trench of the estate, which was run off every tide. Every possible justice was done in digging the drains and in laying the tiles with mathematical precision; they were covered over with divets, and the drains packed with clay; the whole field being stiff clay soil.

There was an adjoining field of about the same area cultivated with open drains, in the ordinary manner. The result of this experiment, for the first crop, was that the thorough drained field gave about 75 per cent. more sugar than the open drained field, and made very nice sugar, which sold 1*s*. 6*d*. per cwt. over the price obtained for the sugar from the open drain field:—so far well for the first crop. During the second year the drains began to exhibit symptoms of silting; and, notwithstanding the reservoir being kept pretty clear of water by the pumping engine, the field got frequently inundated during heavy rain. At the expiry of two years I examined the tiles at various distances from the reservoir, and found them to be nearly silted up at the upper end of the field; the silting in them gradually diminishing as I approached the reservoir, until within two roods of the reservoir, where the silting disappeared entirely. In consequence of this silting, and the inundations caused thereby, the canes on the upper half of the field were puny and miserable, gradually improving, however, towards the reservoir. The result of this year's crop showed a falling off of nearly 100 per cent., as compared with the yield of the previous year, and the sugar also fell off much in quality. I watched this experiment from first to last, with great attention and much interest, because I saw clearly that by a successful system of thorough drainage the prosperity of the colony would be materially secured; inasmuch as two-thirds of the manual labour now employed in cultivating the land would thereby be saved, and brute labour substituted in its stead. The land under thorough drainage would then be a perfect level, and every facility afforded for the use of the plough and all other agricultural implements worked by quadrupeds; whereas at present, under a system of open drainage, it has been found profitably impracticable, and manual labour is the sole power employed to cultivate the soil.

On this subject I may mention, in conclusion, that the thorough drained field on "La Penitence" was delved or shovel-ploughed all over, and the cane rows afterwards pulverized with the hoe, so that the whole surface of the land was completely turned up to the depth of eight inches.

It may be asked, "Why is it impracticable to use implement and quadruped labour under the present system of drainage?" I answer, because it has been found impracticable to run the furrows into, and at right angles with, the open drains. These drains are generally two feet wide and some 30 inches deep, running parallel at every 30 or 36 feet, and forming beds of that breadth; in consequence of the necessity for rounding the beds, in order to prevent a lodgment of water on the surface of our clay soil, these drains are generally worn so wide that quadrupeds of any kind cannot pass over them with the drag of the plough or other implement; thus rendering it impracticable to lead the furrow into the drain: without which, water would always lodge in the furrows, and much injure or destroy vegetation in the cane.

It is true that the plough may be worked parallel to the drains; but then water would inevitably lodge in the furrows, and thereby cultivation would be much injured, if not destroyed. Under all circumstances, I am forced to the conclusion, that thorough drainage never can be profitably practised in the alluvial soils of this colony; mainly from the want of outfall, aggravated by the tremendous falls of rain, to which we are frequently subjected. With regard to quadruped labour to be substituted for manual labour in cultivating the soil under our open drainage, cattle cannot stand it, and I believe it to be profitably impracticable with the implements at present in use; but I am of opinion that an implement may be invented to do the work of the plough, and much more efficiently, with open drained land.

In order to come to any satisfactory understanding of the system of cultivation pursued in British Guiana, the reader must bear in mind that canals for the water carriage of the canes from the fields to the mill are established on every estate; the transport of the canes being effected by means of punts, dragged by mules or oxen. These canals are kept distinct and separate from the draining trenches, so that the functions of each are performed without interfering with one another. Between each of the cross canals on an estate run the fields, consisting generally of 10 to 12 beds; the small drains are usually dug two feet wide and some 30 inches deep, with a six feet sucker drain running across the drains in the centre of each field, for the purpose of keeping a communication open between the drains, in case of any of them becoming obstructed by the falling in of their banks or otherwise. The small drains generally discharge their water into the side line trenches, which are again discharged into the sea or river by means of kokers or sluices. These are furnished either with sliding doors or valve doors. The sliding doors are hoisted up by means of a simple wheel and axle, as soon as the water by the falling tide gets under the level of the water on the estate, and they are kept open until the following flood tide rises to the level of the draining water, so as to prevent any further run outwards when they are shut. The valve door is self-acting, opening outward, so that as soon as the water outside falls by the action of the tide below the level of the water inside on the estate, the pressure of the water inside forces the door open, and drains the estate. When the water again rises, by the influx of the tide, to the level of the discharging water, the door by its own weight shuts, and the pressure of the external water keeps it shut.

The drainage of a sugar estate is, of course, the most important of all considerations. The most essential point to be considered in establishing good drainage is to have your kokers or sluices of sufficient capacity, and fixed in the most direct line for efficient drainage, and at a proper level. The best position for a sluice or koker is in a direct line with the side line trench at the outlet to the sea or river, generally on the line of the front dam. The proper level at which to place the bottom of a koker or sluice is the level of dead low water mark at high springs; this will secure it from undermining, and run off the water from the draining trenches to the lowest level possible. If the foundation be found to be a good and perfectly solid caddy or clay, which it generally is, no other foundation is necessary; if otherwise, cross timbers of equal lengths ought to be placed on both sides of each flange (if an iron koker), joined or rather bound together by a runner the whole length of the koker, at each end of the cross timbers, to which the runners must be securely bolted: a similar foundation will answer for a wooden koker or sluice.

With regard to the small drains and leading draining trenches, it may be enough to remark that great care and attention must always be given to keep them free of any obstructions to the run of water, and as deep as it is possible to drain them; bearing always in mind that the lower you can keep the level of the water in the drainage, the better your cultivation will be; deep drainage being the nearest approach that can be made with open drainage to the many advantages derived from thorough drainage, more particularly when the soil is kept turned up; because in such a case the water falling in rain will percolate through the soil, instead of saturating it and passing off over the surface, thereby consolidating and caking the surface soil, and rendering it unproductive. No doubt, in a case of this kind, the grape or agricultural fork may be used to advantage in opening the subsoil without turning it up, somewhat after the fashion of a subsoil plough.

The nearer your draining trenches approach to your kokers, the larger they should be, so as to act as reservoirs in cases of flooding rains. The depth of these trenches must of course be regulated by the depth of your kokers or sluices, but never to be dug under the level of the bottom of your kokers.

It is always necessary to parapet all the leading draining trenches, the larger ones by two steps of at least four feet each wide on either side, so as to prevent the banks falling in and obstructing the run of water to the kokers. It is also necessary to parapet all the navigable canals, so as to prevent the banks breaking.

Never carry the ends of the cross canals nearer than three roods from your side line trenches, otherwise you run the risk of leakage from them into your drainage: this ought always to be carefully guarded against, as well for the purpose of preserving fresh water in your canals, as with a view to keep the canal water out of your drainage, which is on many estates during the dry season very brackish, and consequently destructive both to cultivation and machinery. For the purpose, also, of guarding against the leakage from the canals into the drainage, wherever there is a canal, a head bed or dam of three roods wide ought to run parallel to it, with a four feet draining trench inside, running parallel to the canal; the cane rows running at right angles between the two, sloping inwards, and the canal to have a six feet parapet.

The navigable canals on estates are not generally kept of sufficient depth; on many estates they are obliged to take in salt or brackish water in crop time after continued drought, to enable them to bring the canes in the punts to the mill. If the canals were kept five or six feet deep they would be filled during the wet season with rain water, which would give a sufficient supply of water to last during the drought; but at present the canals on many estates are so shallow that they are obliged to keep them filled to very near the level of the land; it consequently soaks through the soil, and when the water is salt, if it does not destroy, it most seriously injures cultivation, and it takes years to remedy the evil done.

The canals for navigating the punts are fed with water, either from the interior or from the river; but only in cases of pressing emergency from the sea, as salt water is most destructive to cane cultivation, and seriously injurious to the machinery of the steam-engine, which is now the only machine used in the colony for expressing the cane-juice from the cane.

With regard to clearing land for cultivation, it is scarcely necessary to remark on it, because the operation here is the same as in most other new countries, viz., by cutting away the forests and underwood, and burning the felled stuff off the land, or allowing it to decay thereon. This last system I prefer, as the decayed wood, &c., adds much in substance to the lasting fertility of the soil; whereas the ashes, when the stuff is burned, although they also fertilize the soil for a time, the effect is more evanescent, and they are frequently blown away by the winds, or washed away into the sea or river by the heavy rains.

The estates are always laid out in elongated squares, running on the coasts and rivers either north and south, or east and west, so that in clearing away bush or forest for cultivation, it is necessary to preserve these bearings by compass, theodolite, &c. As the proper construction of dams or dykes surrounding the cultivation of an estate is of much importance for protecting the cultivation from inundation by external water, I will describe rather minutely the proper mode of their construction.

The first operation to be performed is to fix the site, to clear away everything on the surface of the land for it, and to lay out the space for your dam: say that the base thereof is not to be less than 36 feet, with two steps of a parapet, each six feet wide, on either side of it, thus giving a space 48 feet wide. This being picketed off, you are then to line off eight feet in the centre of the space for the dam from end to end, for a blind trench; from this eight-feet space you must clear away all stumps and roots of trees perfectly, and dig it to the depth of six feet under the level of the land, so that the bottom of it shall be a few inches under the level of the trenches to be dug on either side; then line off your trenches before and behind your intended dam: say the inside draining trench 12 feet wide, and the outside trench of the same breadth, the former to be dug five feet deep, the latter three feet deep; the object of having the outside trench so much shallower than the inside one, is to prevent too great a pressure of water on the dam.

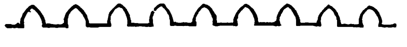
These preliminaries being arranged, dig your parapets, throwing the ground from either side within the 36 feet space for the dam; after this dig your trenches, throwing the ground back as before; and after completing these operations, select the stiffest clay thrown out of your trenches, and puddle and ram it into your blind trench, until you carry its level to the level of the intended height of your dam, which ought to be at first about 5½ feet above the level of the land: the object of this blind trench of course is to prevent the leakage of external water through your dam. After this comes the operation of making up and finishing the dam. I have already said that the base of it is not to be less than 36 feet wide; line off 16 feet breadth in the centre of the 36 feet, and throw back all the ground beyond the base of the dam, from either side, so as to make up the dam in the centre to a breadth of 16 feet at the top, thus giving a slope of 10 feet on either side. I believe that this will be found to give the required height; and when the trenches, parapets, and dam, are nicely pared off, the job will have a finished appearance.

I have been thus particular in giving a caution about the importance of the blind trench in empoldering or taking in new lands, because I have had dear bought experience of the damage sustained by cane cultivation on many estates, from negligence either in not having made a blind trench at all, or from carelessness in allowing it to be made and rammed in very imperfectly; the labour lost in patching up and stopping leaks in such dams for years, would have paid for making a new dam over and over.

In making a sea-dam, however, when at all likely to be exposed to the surge of the sea, I would recommend a more extended slope to be given to the external face of the dam, so as to cause as little opposition as possible to the action of the surge. A natural beach, perhaps, gives the best criterion of what such a slope should be; should there be any such in the neighbourhood. In making a sea-dam the whole of the ground must be taken from the land inside.

After taking in new land, either from primitive forest or savannah, I have found two or three crops of plantains to be taken off such land to be an excellent preliminary to putting it in canes; the root of the plantain being large and bulbous, opens up the soil, and makes it more friable; while the plantain does not appear to take from the soil any of the qualities required for the nourishment of the cane: and, besides, the fruit of the plantain may be considered the staff of life in this colony, and is always very saleable at a remunerative price. Add to this, that an abundant supply of plantains on an estate is a very great attraction to the location of labourers on it, by which means a command of labour is generally obtained.

Now with regard to the preparation of land for canes, the old system used to be by what is termed holing and banking; which, however, may be more properly termed drilling, than which I do not know of any worse system: it is now, however, pretty well exploded, excepting by a few tenacious men of the old school. This system will be best explained by the accompanying diagram, which gives a transverse section of a field after being holed and banked; the banks and



holes running across the beds from drain to drain. It will be seen by this diagram that the canes were planted in the holes or in the bottom of the drills, generally from eight to nine inches under the level of the land; and that the whole of the rain falling on the surface of the field, after the land became saturated with water, must run over the cane holes to the drains; thus, in fact, making a regular drain of the cane hole. The injurious effects of this to the cane plants is manifest; it keeps the soil about them during rain in a saturated state, bakes up and consolidates about the plants the previously pulverized soil, and in most instances checks vegetation in them, and causes the plants to rot in the ground.

In a dead flat country such as this, where good drainage is of the first importance, it will scarcely be necessary to say anything more to condemn so barbarous a system in the minds of all reasonable men; and I take some credit to myself for having been the first person to expose publicly the ruinous effects of this bad system of cultivation, in a paper which I submitted to the "Agricultural and Commercial Society of British Guiana," in June, 1844.

Instead of the holing and banking system, I recommend the shovel-ploughing, delving, or fork-ploughing of the whole of the surface soil, to the depth of six or seven inches, the sufficient rounding of the beds to prevent water lodging on the surface, and the pulverizing of the cane rows with the hoe preparatory to planting.

It is a matter of the greatest importance to be very select in the choice of cane plants, because every bad plant put in the ground is so much labour lost, besides the loss of the crop arising therefrom; for if the field be supplied by placing good plants where the bad plants have failed, these supplies will not come in for the first crop.

In laying cane plants in the ground, great attention ought to be paid to the character of the soil and weather; with stiff clay soils and wet weather, the plants ought to be laid nearly flat, and slightly covered with a finely-pulverized soil. With the loose and more friable lands, in such weather, the plants may be laid down at a slight angle; and in all soils, in dry weather, plants ought to be placed at an angle of about 45°.

In laying down plants at all times, it is desirable to let the top of the plant point to leeward; because if it points to windward in wet weather, water is lodged between the cropped original leaves of the plant, which frequently rots the top, and by its pointing to windward in dry weather, the sap or juice of the plant is more speedily dried up, and vegetation checked or destroyed.

The general practice in preparing land for canes at present is, to line out the ground across the beds in straight lines three feet by two feet: on the three-feet space is packed all the trash and weedings of the field; the two-feet space is shovel-ploughed, hoe-ploughed and rounded off, and then planted. Now this is a very imperfect system of cultivation, inasmuch as it will be seen that only two-fifths of the whole surface soil has been turned up, the remaining three-fifths continuing to be a solid mass, impervious to the roots of the canes; so that, in point of fact, the canes can only derive nourishment from two-fifths of the soil. The only remedy for this is, of course, to turn up the whole surface soil, as I have already recommended.

Some people will object to this by asking what you are to do with the weedings, &c.? I answer, haul them into the drains until your shovel-ploughing or forking is completed; then line off your field, and place your weedings, &c., on the three-feet space.

People imagine that more labour is required to turn up the whole of the surface soil than is employed to hole and bank the land. This is a mistake which I have proved by practice; for I have found that a man will delve or fork-plough over a given area of land in somewhat less time than he can hole and bank it, paring the hole to a line, and properly making up the bank.

A great error is very generally committed here, in planting land immediately after being turned up; all soils here, more particularly in their primitive state, contain a great deal of acrid matter, very detrimental to vegetation, and I have found by experience that by allowing land to lay fallow for from one to three months after being turned up, by exposure to the action of the air it becomes pulverized, and greatly ameliorated. So great have I known the improvement effected by such treatment, that three months following has caused an increased return of 100 per cent.: never, therefore, plant canes in a raw soil.

Generally speaking, I am of opinion that a sufficient breadth of cane cultivation is not replanted annually I consider that on all estates one-sixth of the old land ought to be replanted every season; that is, immediately after cutting the canes, by thoroughly digging out the old stumps and turning their roots up on the old cane rows (should they not be required for supplying elsewhere); then hoe-forking, or shovel-ploughing and hoe-ploughing the old bank or space between the cane rows, and levelling off and rounding them; after this let the land remain thus pulverized as long as can be conveniently done previous to planting. I do not think that in shovel-ploughing and in forking sufficient attention is paid to properly pulverizing the soil. I have often seen it turned up in large clods; in stiff clay lands with heavy rains, these clods form risings on the surface of the land, and hollows are formed between them, in which water lodges and destroys vegetation; whereas, if the soil had been finely pulverized, it would show an even surface, on which there would not be any lodgment of water, and the canes would derive the full benefit of the pulverized soil, which they could not do when the land is turned up in large lumps.

Some planters, in planting as above, allow the ratoons and plants to grow up together for a time. I believe this to be very injurious to the plants, as well as to the yield, because the greatest demand of the canes for nourishment is when they are first produced in sprouts, and consequently the greatest exhaustion of the soil then takes place. This renders the old cane rows worthless for moulding the young plants when the ratoons are allowed to spring, besides that the ratoons sprout faster than the plants, and injure them by shading them.

After planting a field, the next operation to be performed is weeding and moulding the young canes, and supplying blanks wherever the first plants have failed; the time for doing this must be regulated by appearances and the state of the soil and weather, but in general this work will have to be done about two months after planting. If it were possible at this time when the plants are yet rather loose in the ground, to get the people to hand-pick the grass and weeds out of the cane rows, preparatory to moulding the young canes, it would be a very great advantage: but the labourers can scarcely be got to do this, so that people are generally obliged to put up with hoe-weeding and moulding. Whether the moulding should be light or heavy will depend much on the soil and weather: if the soil be a stiff clay, and the weather wet, a light moulding of well pulverized soil will be best; if the weather should be dry, a heavier moulding may be used; and with loose friable soils, more latitude may be taken in heavier mouldings, whether wet or dry; but, generally speaking, heavy mouldings are to be avoided, and instead, keeping the soil loose and friable by turning it up with the shovel or hoe is more desirable, taking care not to disturb the roots of the cane plants. Mouldings have a tendency to cause the roots of the canes to spread upwards, and to cause the stumps or stohls to rise above the surface of the land; here, however, moulding is necessary to a certain extent to nourish young canes, but it ought to be used with caution at all times.

Shovel-moulding is occasionally resorted to with ratoons, and, when judiciously done, produces a good effect; I believe that the benefit derived from it is caused by the ground being taken in thin slices by the shovel from the bottom of the decayed trash bank, and these slices applied with the decayed trash inwards to the growing sprouts. Moulding, however, during wet weather, and more particularly in stiff soils, when the land is saturated with water, ought never to be performed, as it is then most injurious.

A second weeding and moulding will be necessary when the canes are some four months old, and in stiff lands a third weeding is frequently necessary, and, after that, a weeding and thrashing, when the canes are some eight months old. No positive periods can, however, be laid down for these operations; so much depends on soil and seasons, that a great deal must always be left to the watchful care and judgment of the manager.

Canes generally become ripe for cutting in 13 to 16 months: in river situations they require more age than on the coasts, and I consider that ratoon canes on river estates ought never to be cut under 14 months, and plant canes at 15 or 16 months of age; on coast situations the former may be cut at 13 months, the latter at 14 or 15 months. Canes ought never to be cut in wet weather if it can be avoided, as well on account of the great disadvantage attending the manufacture of sugar in such weather, as because very many of the stumps or stohls are destroyed by cutting the canes at such periods, particularly in stiff soils; I have frequently known fully two-thirds of the stumps lost, and the ratooning, of course, destroyed.

To avoid this loss, it occurred to me several years ago, that by leaving all the cane sprouts standing, instead of cutting them down along with the ripe canes, as generally practised, that the circulation of the juices would be maintained through them, and the stumps saved; I tried the experiment, and with complete success, so that it became evident that the stumps were destroyed by a total and abrupt stoppage of the circulation of the juices through cutting every cane and sprout down when the soil around them was chilled and saturated with water. Leaving the sprouts growing in this manner gives a field a ragged and irregular appearance for some months; but you have the advantage of the more advanced sprouts for supplies, and the field comes earlier to maturity. The first fields which I had treated in this manner were on plantation "Doornhaag," on the island of Leguan, then under the management of Thomas Clark, Esq., now proprietor of Plantation Aurora: they were two fields of low stiff lands, where the most of the stumps were lost after cutting the canes; previous to being treated in the manner described they seldom yielded over one-and-a-quarter shipping hogsheads of sugar per acre; the crop reaped from them, after the treatment described, amounted to about two tons per acre.

With respect to the use of manures here, the fertility of the soil is generally such, and the resources of new land to resort to when the old gives out, is so great, that manuring is seldom resorted to. I have, however, tried experiments in manuring, but I am sorry to say that they were generally so imperfectly carried out, that, excepting in the case of one estate viz., the "Waterloo," in the island of Leguan, I am unable to give particulars and results. On this estate I had four adjoining fields of indifferent stiff land prepared for planting: three in the ordinary way of three feet by two—having the two feet for the cane row thoroughly turned up and pulverised. To these three fields, along the cane rows and after planting, I applied to one field at the rate of 180 bushels of finely pulverised shells per acre; to another at the rate of 180 bushels of shell-lime per acre; and to the third field about 32 bushels of Peruvian guano per acre. The fourth field I merely turned up by fork and hoe, ploughing *all over the surface,* and left it in that state for a month; I then prepared and planted it in the ordinary way. These four fields shipped two tons of sugar each per acre, so that they all yielded alike; the more perfect manner in which the field was cultivated on which manure was *not* used, appears equal to the use of the manures in the benefit obtained.

I may mention that the field where the guano was used was in very bad condition before the guano was applied, but this guano completely renovated it in about three weeks. The gentleman who managed the "Waterloo" (my late respected friend Mr. A. C. Trotz) is now no more; but my friend, Thomas Clark, Esq., already mentioned, will, I have no doubt, have some recollection of these experiments; as I asked him, on more occasions than one, to look at these fields, and I remember that he was particularly struck with the rapid improvement which took place in the guanoed field. The advantage from the use of the guano disappeared, however, after the first crop; that from the shells and shell-lime was felt in diminished degree for the two succeeding crops; at the end of that time I had the ground turned up in these fields, and found the shells and shell-lime deposited in a slight stratum between the surface-soil and the substratum.

It was a very general practice in the colony at one time, to burn the cane trash off the fields after cutting; and in the county of Berbice it was, and I believe still is, a common practice, to set fire to the fields about to be cut; the object of both these systems has been to save labour in weeding and hauling trash, &c., and some people imagine that the burning causes a better spring from the stumps; this, however, I believe to be a fallacy. I entirely disapprove of both systems, as believing them to be destructive to the fertility of the soil; and in the Berbice mode of burning the canes, very injurious to the quality of the sugar, besides destroying many of the stumps.

The only excuse, in my opinion, for resorting to such a system is for the destruction of vermin, and for this purpose I have myself been compelled to resort to it. Where land has been cropped (for it may be) 20 successive years and upwards, in the production of any one article without any rotation of crops (which I have known to be the case frequently in the production of canes in British Guiana), those qualities in the soil required for the nourishment of that article must become much exhausted; it surely, then, is most desirable to return to the soil as much as possible of the article produced, in order to sustain it in heart; and I maintain that this is best done by leaving the trash, rotten canes, &c., on the ground to decay and become manure.

I am aware that it has been argued that the ashes of the burned trash fertilize the soil. I admit that it is so, and a very powerful one, if preserved in the soil; but if the burning takes place in dry weather, the ashes, being very thinly spread on the hard surface of the soil, are blown away by the winds, and if it be burned in wet weather they are washed off into the drainage, so that in either case they are nearly lost to the soil.

If the megas could be spared from the boiling house, there is no doubt but the land and crops would be greatly improved by returning it to the soil along with the trash.

A system of drilling between the cane rows is very generally practised, more particularly on low retentive soils, which cannot by other means be sufficiently well drained. It is only in such cases, in my opinion, that drilling should be resorted to. But the general mode in which drilling is practised is, I consider, decidedly objectionable; it is by lining out 20 inches to two feet for each drill between every alternate cane row, and placing the ground out of the drill on every alternate trash bank, thus leaving the drill a complete open drain, on the sides of which are often exposed the tender roots of the canes, which are thus cut off from all nourishment. The proper system of drilling land should, in my opinion, be as follows:—first of all, immediately after a field is cut, range the cane trash on the cane rows, then line off for your drills as before, dig them, and place the diggings on every alternate space between the cane rows; after this remove the cane trash, weedings, &c., and ram them into your drills; these decompose in the course of time and form a valuable manure, while, by this means, the tender roots of the canes are nourished and protected.

Another system now pursued after cutting down a field, is to shovel-plough or fork-plough every alternate space between the cane rows. This is serviceable as far as it goes, but it would surely have been much more so, if the whole surface of the land had been so treated originally.

A mistake in my opinion is committed in neglecting to supply fields after cutting during dry weather. It is true that by so supplying you will lose many of the plants, but you do great good by loosening and pulverizing the soil round the stumps, thereby insuring a vigorous spring from them as well as the growth of a more luxuriant cane. By such a system of supplying, coupled with a thorough shovel or fork ploughing of every alternate space between the cane rows, you approach pretty nearly to the most approved system of turning up the whole land surface.

An implement introduced here by Mr. Mungo Campbell, jun., of Glasgow, called the hoe-fork, I conceive to be the best adapted of any yet invented for turning up our land. It is made with an eye for the admission of a handle, and has three or four prongs, each about seven inches long, on one side of the handle, and a blade like that of an adze on the other side of the handle, hoe-fashion. The forked part is for turning up the soil, the blade part for cutting all roots, &c., which may come in the way. One of the great advantages which this implement possesses over the shovel or fork is, that the prongs are calculated to turn up the surface soil *only*, without encroaching on the substrata, which is frequently here found to be an indifferent soil: in using the fork or shovel the depth penetrated cannot be so well regulated.

With regard to the most profitable description of cane to cultivate, I prefer the long-jointed Bourbon to any other; it generally yields the largest quantity of juice, and the purest, as compared to any other canes of which I have had experience. The system of stripping canes of their leaves, or what is generally called trashing, is carried in many instances to a very injurious extent. In my opinion, it is only the dry or withered trash of which the canes ought to be relieved; but instead of that, quite as many green leaves as dry leaves are stripped off; and whenever this is done, the tender joints of the growing cane are wounded and left exposed to the action of the weather, and the circulation of the juices is deranged, besides exposing the tender joints to the destructive effects of the insect called the borer.

My principle always has been to take great care of the young canes, and to let the old canes take care of themselves. I consider it to be labour lost to put a hand to a cane after it is eight to nine months old, until it be cut; and I am satisfied that this is the wisest system to pursue in order to obtain a good crop.

As I have not yet stated any facts to establish the general fertility of the alluvial soils of British Guiana under a fair system of cultivation, I may here state the result of a crop of sugar obtained by me on plantation "Endeavour," situate on the Island of Leguan, in the county of Essequebo, in the year 1823. During that year, on plantation "Endeavour," canes were cut and made into sugar over an area of 156 acres of ordinary land, from which were shipped, in the vessels of Messrs. John Campbell, sen., and Co., of Glasgow, 456 hogsheads of sugar of 38-inch truss. To show the very great advantage of fallowing land after being turned up, and before planting, I will here state the result obtained during the same year on the same estate, from a half field, which was the northern half of No. 9. For this half field, after it had been prepared for planting by shovel-ploughing and hoe-ploughing, I fell short of plants, and it consequently lay over for nearly three months before I could plant it; at the expiry of that time it had got a heavy crop of sweet grass on it. I had the grass weeded off, and the half field of four-and-a-half acres carefully planted and well attended to thereafter, until the canes came to maturity, when they were cut; and the four-and-a-half acres of land yielded 21½ shipping hogsheads of sugar 38-inch truss. This, I think, clearly shows the great advantage of fallowing land for a time, after its being turned up and previous to planting.

The foregoing results were obtained solely by minute attention to good drainage and pulverizing the soil, with scrupulous attention to the selection of good plants wherever they were required. I may mention in conclusion, that about 55 acres of the canes cut for the crop were plant canes. Not one particle of manure was on that occasion applied to the land.

With regard to the manufacture of sugar, I attach very great importance to the canes being ground and the liquor sent to the boiling-house as soon as possible after the canes are cut, and to carefully throwing aside all rotten canes, as well on account of the quality as the quantity of sugar. Next to this, the greatest possible attention to cleanliness throughout the process of manufacture is most important; looking most carefully to the keeping of every vessel through which the liquor passes, in a perfectly sweet state, and perfectly free from acidity. Great attention is also necessary to the proper tempering of the liquor; and to regulate this I do not know of any better test than to take a tumbler-full of the tempered liquor immediately after it has been tempered and well stirred up; let it remain undisturbed in the glass for a quarter of an hour, and if at the expiry of that time, or say twenty minutes, a perfect deposit of sediment has taken place without discolouring the liquor, you may rest assured that it is rightly tempered. If the precipitation is not effected in that time, more lime is wanting, which had better be moderately applied in the substance of cream of lime. If the liquor should be discoloured by the lime, you must add more liquor to that which has an excess of temper. The test by litmus paper ought to be made at the time of tempering, so as to have a double test. In order to be able to correct any error in first tempering, I prefer applying the lime at an early period: say in the receivers into which it is discharged from the mill.

Good clarification is unquestionably important in the manufacture of sugar, and steam-clarifiers are undoubtedly the best means to secure that end. The high-pressure steam-engine, sugar-mills, and steam-boilers, which have lately been imported here, and which have given most satisfaction, are those manufactured by W. and A. McOnie and Co., of Glasgow; and their steam-clarifiers are those generally in use here. A battery of three steam-clarifiers, worked by high-pressure steam up to 32 lbs. to the square inch, the clarifiers to contain 700 gallons each, will supply clarified liquor to make five or six hogsheads of sugar daily, and allow time for the liquor to deposit its sediment in the bottom of the clarifier in which it has been received. I prefer a deposit taken in this way to the system of subsiders, because it saves time, and saves one remove of the liquor. I have always found that the quicker the process of manufacturing Muscovado sugar can be carried on, consistent with a due regard to cleanliness, the better is the quality of sugar made.

In clarification, I always have the scum rising to the surface of the liquor up to the boiling point, completely raked off, and allow the deposit to take place afterwards. This I believe to be advisable, because by its means you first get rid of all the refuse stuff, which rises to the surface of the liquor, and you afterwards get rid of the earthy and heavier filth by its being deposited. Steam-clarifiers, when worked by the sugar-pan furnaces, are of great importance in keeping up a large stock of megas fuel, by reason of their accelerating the work so much, without increasing the consumption of that valuable material.

I have heard objections raised to the use of high-pressure steam in working clarifiers, but I do not hold the objections to be good, because I consider it important to have the power at command. By the steam-cocks invariably attached to such clarifiers, the supply of steam can be regulated to the greatest nicety; so that the moment the liquor is brought to the cracking point, the steam can be shut off to an extent to keep the liquor at that degree of heat, until the whole of the scum or filth which then rises to the surface, is raked off. This being completed, increased steam may be admitted until the liquor is brought to the boiling point, when a further scum and filth will be thrown up; and the liquor ought to be kept at that point, and the scum raked off, until any ceases to appear. The steam ought then to be shut off entirely, the steam-pipes raised above the body of the liquor, and half an hour allowed for a thorough deposit to take place in the clarifier, before the purified liquor is drawn from the clarifier into the coppers. It is an admitted fact, that the most impure particles of cane-juice, or the refuse of the liquor, is the first portion of it which contracts acidity. It surely, then, becomes a matter of much importance to separate these impurities from the liquor at the earliest possible period; and I contend that this purification is best and most rapidly accomplished by the means here stated.

I have ever disapproved of the late Dr. Shier's system of clarification, which is to crack and boil the liquor in the clarifier, and after doing so to stir up the whole mass of liquor—scum and deposit—until the whole mass of filth is thoroughly mixed up with the body of the liquor; and then to draw off the whole in this filthy state into subsiders, and there to allow it time for deposit. I object to this process, in the first place, from the loss of time occasioned by it; and, in the second place, from the risk of the liquor contracting acidity, in consequence of all the filth and scum having been jumbled up with it.

When waste steam can be obtained of sufficient power for clarification, it is of course attended with a great saving in fuel to make use of it; and I believe that with a high-pressure engine of 15-horse power or upwards, with a steam-boiler in proportion, and with well-regulated valves, a sufficient supply of waste steam may be obtained to work steam-clarifiers. A great saving in fuel is, however, effected in well-regulated high-pressure boilers hung on the flue of the sugar-pans; but it requires two megas-furnaces to keep up a sufficient supply of steam to work clarifiers efficiently; and double furnaces, which of course implies double teaches, cannot be used, unconnected with steam-boilers and clarifiers, without greatly decreasing the important article of megas fuel, caused by the operation of the two furnaces. So that I look upon the hanging of high-pressure steam-boilers on the flue of sugar-pans, and two megas-furnaces and teaches, to be an inseparable portion of that system for working steam-clarifiers with a saving of fuel and time.

Clarification may be effected, by proper attention, with an ordinary battery of six coppers, by taking the liquor alternately into the fifth and sixth coppers. This is done by charging, say the fifth copper first, and the sixth next; thus giving time for the liquor in the fifth copper to get thoroughly cracked and skimmed before it is charged up, which must be done into the fourth copper. By the time this is accomplished, the liquor in the sixth copper is in course of being cracked and skimmed; then commence filling the fifth copper with cold liquor again, at the same time changing the clarified liquor, by a gutter across the fifth, from the sixth into the fourth copper, and so on alternately. I merely mention this as a good system where clarifiers cannot be afforded.

The practice generally observed in straking or stricking the sugar from the teache, when it is in a fitting state of granulation, I will here notice. What is called straking is merely discharging the sugar from the pan in which it is brought to the granulating point, either by means of a dipper or by the ladle, into a wooden square tray, called the cooler, where it is allowed to remain, after being mixed up with a sort of wooden spatula, until granulation is completed; it is then put into hogsheads until all the molasses drain off from it, when it is cured and fit for shipment.

Head boilermen on estates, from long practice, judge the straking, or discharging point of the sugar, with great accuracy from its appearance in the teache. When it is at the straking point it forms large unbroken globules, and granulation can be perceived if a skimmer or ladle is dipped into the boiling liquor and suddenly removed; the granulation appearing on the back of either.

The thermometer, however, is a sure test for the straking point; and when the boiling liquor in the teache shows a temperature of 132 degs. Fahrenheit, it is in a fit state to be discharged into the cooler. Straking too high ought to be carefully avoided, because it injures the granulation and darkens the sugar, and retards its curing; by straking a little too low the quality of the sugar may be improved in grain and colour, but there will be waste of sugar by an increase of syrup or molasses: so that it is of material importance to strake at the proper moment.

When straking, it is of importance to check the action of the fire at once, so that all the strake may be taken off at an even quality, and also in order to guard against injury to the teache. This can be done by at once shutting the ash-pit door when going to strake, and at the same time cramming a bundle of green megas into the furnace.

In potting, or removing sugar from the coolers to the packages in which it is placed for shipment, time ought to be given for a thorough granulation; and as soon as the sugar in the cooler comes to the temperature of the surrounding atmosphere it ought to be potted.

In general, good Muscovado sugar, after being potted or put into hogsheads, ought to be cured and fit for shipment in 14 days.

Regarding the system of manufacturing sugar by the vacuum-pan and washing process, it is unquestionably the best means which has been yet adopted for improving the quality of sugar here; but it requires a considerable outlay of capital to establish it, and is attended with additional labour and a considerably increased consumption of fuel; so that at the present time I doubt much whether it is not more profitable to make good Muscovado sugar. It is true that by boiling in vacuo a greatly improved granulation is obtained, by reason of which it bears washing with comparatively little waste; and by this means the sugar, being freed of molasses, loses very little weight on the passage home, as compared with the loss of weight on Muscovado; but then, again, you have the powerful influence of the refiners at home, always opposed to the introduction of any article to come into competition with their sugars. This influence has always been exerted to the prejudice of our vacuum-pan sugars, and always will be as long as that body exists.

A great deal has been said, and much has been written, about the charring or discoloration of sugar in the process of manufacture by the ordinary pans, as compared with that made by the vacuum-pan process; but I have invariably observed that the sugar, when discharged from the open teache or pan, is absolutely lighter in colour than the sugar when discharged from the vacuum-pan. And this leads me to believe that the discoloration of sugar in the process of manufacture is more the effect of the length of time it is kept exposed to the action of heat than to what is ordinarily called charring; for it is a fact, admitted by all practical men, that in the manufacture of Muscovado sugar, "the better your fuel the fairer and better your sugar," or, in other words, that the more rapidly you can carry on the process of manufacture *(cœteris paribus)*, the better the quality of your sugar. The great advantage of the vacuum-pan process, therefore, is, the more perfect and larger granulation obtained by its use compared to the open pan process, causing it to bear washing with little waste, and by this means to improve its colour.

Another system of manufacturing sugar by what is called the Gadesden pan process, has also been tried here, but with no profitable result.

Rellieux's patent apparatus is in operation on one estate in this colony, but I have not had an opportunity of examining it, and cannot state how it answers; but as I believe the main advantage derived from its use is in a saving of fuel, effected by keeping the apparatus, which is worked by steam, continuously at work night and day, I imagine that this advantage must be in a great measure unattainable here, because of the impossibility of keeping it at work without interruption; and every interruption to its operation must of course be attended with loss of steam, and consequent loss of fuel.

The important matter of the distillery operations remains to be treated. As I confess myself a perfect tyro in the science of chemistry, I will not attempt to treat this subject scientifically; the ground being already occupied by men of talent and high scientific acquirements. Amongst these I would particularly mention Dr. Wilton Turner, a gentleman of high chemical acquirements, and who enjoys a patent-right in this colony for an improved system employed by him in the manufacture of rum. I shall, therefore, merely attempt to lay down a few rudimentary instructions for the guidance of novices in distillation.

I may begin by stating that the liquor-loft ought to be supplied with a sufficient number of vats, each calculated to contain a full charge for your stills. These vats ought to be numbered from one upwards, and a book kept for a regular record of the date at which each vat is filled or set with liquor, giving the ingredients contained in each, the density by saccharometer, the daily attenuation, the time of fermentation, and the date of distillation; with the return of rum and proof thereof obtained from each vat. Great attention is necessary to watch minutely the process of fermentation, so as to run the liquor into your stills at the proper time; as much of the return of rum obtained will depend on this. The moment first fermentation ceases in the liquor, it ought to be run into the still, otherwise an acetous fermentation will take place which is destructive to the return of spirit; the temperature of the liquor will generally indicate the proper period for distillation, and the thermometer is a safe guide to ascertain this. When the temperature of the liquor in your vat shows that of the surrounding atmosphere, or becomes attenuated to about 10·10, you will be safe to charge your stills with it.

Great attention is also necessary to keep all the vessels used in the process clean and sweet. If you once allow them to contract acidity, it is attended with great loss, and much difficulty in remedying the evil. A strict attention to this simple process will show the best sets, and lead the operator to a knowledge of the means to be pursued in order to obtain the best return of spirits from a given set of liquor.

It is calculated, in setting up wash or liquor in the vats, that about six gallons of skimmings contain as much sweets as one gallon of molasses, taking molasses as the criterion; and the wash is composed of molasses, skimmings, and sweet water, viz., the washings of the coppers, cisterns, &c., and sometimes lees. It is considered that from 10 to 12½ per cent. of sweets should be used in setting up the wash. The right proportion of each of the ingredients is best ascertained by practice. With a good set of wash, about one gallon of rum, proof 24°, ought to be obtained from each gallon of sweets used in the wash; or, on an average, probably 10 per cent. of rum, proof 24°, ought to be obtained from the wash. I have known the return of rum to amount to 12 per cent. In testing the wash by saccharometer, about 10·60 is the right thing.

From what I have seen of the working of steam-stills here, and the cost of their first erection, with steam-boilers, connecting gear, &c., compared with the working of Leischman and Welsh's best stills, retorts, and rectifiers, carefully worked by the direct action of fire on the stills, I certainly give a preference to this latter system, because the consumption of fuel is even greater in working a steam-boiler generally than it is in working a still; and as far as the return of rum goes, as obtained from a given quantity of wash of a given density, I have found them to be very much alike in both, as well in quantity as in quality. In this country, beyond most others, where the skilled labour of tradesmen is most difficult to be got, I have ever found simplification of machinery to be a matter of great importance; and the working of stills by the direct action of fire, is certainly simpler than working them by the intervention of steam power.

Some people say that there is more risk of accidents by working with the direct action of fire than with steam; but to this I reply, that on at least two large estates under my charge, viz., "Lusignan" and "Hague," Leischman and Welsh's stills have been worked by fire direct for the last 25 years without a single accident; whereas, within the last three years, I have known several accidents to have occurred with steam-stills, some of them attended with loss of life.

The proper manufacture of good colouring matter for rum is very important. For this purpose the best sugar should be selected and placed in sufficient quantity in a pan on an independent fire. The sugar must be constantly stirred with a wooden paddle during the action of the fire on the pan, in order to prevent its getting a singed taste or flavour; and when it comes to a consistency, making it difficult to keep it in motion with the paddle, the fire must be withdrawn, and high wines gradually added to it under the agitation of the paddle, until it comes to a consistency of thick cream, so that the whole will be perfectly dissolved. After this, it should be put into a cask placed on end, with two cocks, one about six inches from the bottom of the cask, the other about two inches from the bottom, and allowed to remain undisturbed, in order to its depositing the sediment left in it, until it runs off from the upper cock entirely free of sediment. It may then be used for colouring the rum, and about three pints of good colouring matter well concentrated ought to be sufficient for 100 gallons of spirit; but different markets require different shades of colour, and to regulate the shade of colour must be left to the judgment of the person entrusted therewith. Great care must always be taken that the colouring matter does not impart any cloudiness to the rum, because when rum is cloudy the value of it is very greatly deteriorated. I would alway recommend colouring matter to be made in large quantity, because the longer it is kept the purer it becomes.

With respect to the cultivation of coffee, it is first necessary to establish a nursery of young plants by sowing the seeds. At the age of some six months these may be transplanted into your already drained field, in squares of eight to nine feet apart. Beyond keeping the field clean weeded, and giving the plants a slight moulding, and keeping them free of water-sprouts, they do not require any other attention for the first three years. At the expiry of this time they commence to bear fruit, which when ripe assumes the appearance of a small cherry: in each of these cherries is contained two coffee beans; and the coffee is cured or dried either by drying the entire fruit in the sun, or by passing the fruit through what is called a pulping mill, which separates the outer pulp or covering from the beans. The beans are then subjected to a washing in a tank full of water, in order to free them of the glutinous substance which adheres to them: this causes them to cure or dry more rapidly. They are then left in what is called the parchment husk, and exposed to the action of the sun on tiled drogheries, or platforms laid with tiles, until they are perfectly dried; and from this they are, during crop time, spread on the wooden floors of a building called a Logee, to the depth, in a heavy crop, of 12 to 18 inches. Whilst thus spread, great attention is necessary to prevent the coffee getting heated and its colour destroyed, by constantly turning it up, and by the use of some dry lime or ashes sprinkled over it. After this, the beans are subjected to the operation of what is called a stamping mill, which separates the parchment husk from the beans. This stamping mill is merely two large solid wooden wheels fixed on each end of a beam on an axle, and worked by mules moving round in a circle—the wooden wheels working in a circular trough filled with the coffee beans. After this, the whole is submitted to the action of a winnowing machine, which separates the chaff from the beans, and subsequently the beans are passed through copper sieves to separate the whole from the broken coffee, and finally hand-picked, and put in bags or casks for shipment.

After the coffee-tree comes into bearing, it merely requires to be kept clean and free of grass and weeds, to be kept clear of water-sprouts and cross-branches, and to be kept trimmed to a height of about five feet. The coffee plant strikes a deep taproot, and deep drainage is essential to its fruitfulness.

As regards the cultivation of the cotton plant, the same system may be pursued as that laid down for coffee. There is, however, a marked difference in the localities most favourable for the successful production of each: coffee thriving best in inland situations, whilst cotton produces best near to the sea; salt being destructive to the coffee plant, but favourable to the growth of the cotton plant to a moderate extent. Again, the coffee plant, from its taproot, requires deep drainage; the cotton, on account of its roots spreading laterally, does not necessarily require such deep drains. The cotton plant ought to be kept trimmed much in the same manner as coffee. The coffee tree bears a small star-shaped white blossom; the cotton bears a yellow tulip-shaped large blossom, which forms a conical pod, enclosing the seed and cotton, the former in layers surrounded by the cotton. In preparing it for shipment, it is necessary to dry these pods by exposure to the sun, so as to cause the seed to separate more freely from the cotton. The cotton, with the seed, is then separated from the pod, and subjected to the process of ginning; this consists of the cotton and seed being passed through small wooden rollers, revolving with great rapidity, which separate the cotton seed from the cotton; they are worked either by labour, somewhat after the fashion of a common spinning-wheel, or by mechanical power. After this the cotton requires to be hand-picked, so as to free it of all seed, and thoroughly cleaned; it is then put into bags, and compressed, by means of screws or hydraulic pressure, for shipment. The cotton tree bears in 12 months after planting.

The cultivation of plantains is a very simple process; the land, after being drained, being merely prepared for the reception of the plants by digging holes about 18 to 20 inches deep, in squares of 9 to 12 feet apart, for the reception of the plants. The plants consist of the root of the plantain tree with some two feet of the stem. After the plants are placed in these holes vertically, stem even with the surface, they ought to be lightly rammed all round with earth, so as to prevent water lodging round and rotting them. They generally produce from five to ten suckers, the most forward of which will bear in nine months from the period of planting in rich land; in a poorer soil they will take 12 months to come to maturity. Plantains, to be produced in perfection, require a rich soil; and in such, I have known bunches to be cut weighing as much as 80 pounds, with stem, skins, &c.: perhaps about one-half of that weight would be fit for food, of a very nutritive quality.

When it is considered that each plant, from its suckers, will probably produce an average of four bunches of plantains per annum, it will be seen how valuable it is as an article of food, and that in this colony it is justly termed the staff of life.

With respect to the edible roots grown here, consisting of bitter and sweet cassava, eddoes, yams, tannias, sweet potatoes, and many others, it may be enough to say, that in order to secure their producing abundantly, all that is required before planting them is a perfect pulverising of the soil and good drainage.

A constant attention to economy in giving out of store the daily consumption of the ordinary supplies used on a plantation, is a matter of essential importance. The overseer in charge of this department ought either to weigh, measure, or reckon every article of stores given out by him for consumption; he ought to note all these deliveries in a book kept for the purpose, with the date of delivery, and the name of the party to whom delivered. This will be a great check on wasteful consumption and theft, and in case of disputes will serve for reference, so as to verify the alleged consumption, and note the use to which the stores may have been applied.

The punctual and correct payment of the labourers' wages is a matter of great importance, as well for the purpose of keeping the people contented and cheerful in the performance of their work as with a view to maintaining correct accounts. I prefer weekly payments to those at longer intervals, because a labourer can bear in his memory the amount of his earnings for a week, whereas he might not do so for a longer period; the work being paid for according to the quantum performed. I consider it to be an important part of a manager's duty to superintend the payment of wages on all occasions; his presence frequently prevents disputes and unpleasant bickerings about the amount of individual earnings: moreover it is his special duty to be satisfied that every individual receives his just due, and neither more nor less; it is also very necessary for him to see that every sum paid shall be correctly entered in the pay-list, a check on which should be kept. Important as this matter is in the economy of working a plantation, I fear much that the duty is often shirked by managers.

Care and attention to the sick, and a constant surveillance over the Estates Hospital, so as to ensure its cleanliness and proper ventilation at all times, are duties of humanity as well as interest; and to this department a manager should pay scrupulous attention. He ought to visit the hospital with the doctor, on every possible occasion, and give strict orders to the sick-nurse to administer the medicine and diet prescribed to the patients; and on occasions of dangerous illness, an overseer ought to superintend the doings of the sick-nurse. Attention in sickness I have found to be the most powerful means of eliciting gratitude from a negro or coolie; and as the exhibition of gratitude paves the way to the exercise of a commanding influence over their minds, the importance, to a manager of an estate, of being placed in such a position will at once be seen.

Although we have been unsuccessful in saving agricultural labour in this colony, much has been done in saving labour in the process of manufacture. We have machines called cane-carriers, worked by steam in connection with the steam-engine, for removing the canes from the punts to the mill; we have elevators and inclined planes, also, in connection with the steam-engine, for removing the megas from the mill to the logee; we have pumps and bucket-wheels for removing the cane-juice from the mill to the boiling-house, worked by the engine; we have railways and trucks for transporting dry megas from the logees to the sugar-pan furnaces; and we have railways for transporting produce from our curing-houses to the droghers receiving it. Let it not be said that we do not exert our ingenuity to help ourselves in substituting mechanical power for field-labour, for I have myself invented a machine for ploughing, harrowing,

&c., by means of steam power; and although the obstacles offered by the open trenches have proved a bar to the success of this experiment in the first instance, I do not yet despair of ultimate success. A Mr. Hoard also invented a machine for excavating canals and trenches by steam power; and although the excavating work was well done by it, yet it proved a failure from the want of a sufficiently powerful means to guide it in a required direction.

I mention these things to show that the clamour which has been got up against us for pursuing an antiquated system without any exertion at improvement, is really unfounded in fact; and that, in reality, more has been done to economize labour in British Guiana than has been accomplished in any other British colony within the tropics.

If the British Government will only do justice to the planters of British Guiana, by giving them a sufficient supply of agricultural labourers, the colony unquestionably may become, as a source of revenue to the mother country, one of the most valuable appendages of the kingdom.

It is proper to mention the books which ought to be kept on every plantation, viz., a plantation journal, a distillery and boiling-house book, a receipt and delivery book, a pay-list book, and an hospital book. The forms of these will vary according to the taste and wishes of the proprietor.

A great error has been formerly committed in causing the rollers of sugar-mills to revolve with too much rapidity, and thereby squeezing the cane-juice out of the canes very imperfectly. I consider about two and a half revolutions per minute, with ordinary sized rollers, say about 30 inches diameter, to be about the best speed for rollers to move at. I have known them formerly to revolve five and even six revolutions in a minute; but the slower motion is now almost universally adopted, and with a gain in the quantum of cane-juice, and of course in sugar, varying from 10 to 20 per cent.

Great economy in fuel may be practised by proper attention, and somewhat of a scientific calculation, in hanging coppers and steam-boilers. My attention was forcibly drawn to this subject by the great uncertainty attending the hanging of sugar-pans and steam-boilers, as to their operation by the workmen here. I believe that it is quite practicable to establish an uniform system of hanging those boilers and pans, and building chimneys in connection with them, so as to ensure their acting uniformly and efficiently. The great principle to be adhered to in such cases is, to establish an uniformity of draught from the ash-pit to the chimney top. In studying how this could be best accomplished, I compared a current of air to a current of water, keeping in view the important distinction that a current of water always descends, whereas a current of heated air always ascends. All persons who have observed natural runs of water, whether large or small, must have observed, where the banks of such streams are contracted, that the current is increased; and that where the banks are expanded, the current lags in proportion. So it is also with a current of heated air: where the flues are contracted the air will rush through with rapidity; where the flues are enlarged the draught will lag. Again, in the immediate neighbourhood above a rapid or fall of water, the current is greatly increased, and in passing over it the velocity is at its maximum; so, with heated air, by raising the flues gradually towards the chimney (with a chimney of sufficient height and capacity), the draught is increased, and will be at its maximum in passing through the chimney.

Upon the basis of these facts I came to the conclusion, that by exposing the same extent of surface to the action of the draught from the ash-pit to the throat of the chimney, both inclusive, that a regularity of draught or current of air would be established throughout the range. The size of the ash-pit and flues must, of course, be regulated, in a great measure, by the work to be done by the furnace. In hanging coppers or steam-boilers, it is necessary to their efficiency to run the floors under them as nearly as possible parallel to the shape of the pans or boilers; so that it will take much pains in measurement and great care in calculation to expose the greatest surface to the action of the draught, according to the shape of the pans and boilers. The best plan, I believe, is to make wooden moulds of common boards, equal to the surface to be allowed for the action of the draught between the pans or boilers, and the brick flooring, and to build up the flooring and sides of the flues by those moulds: the flue of the chimney, or rather its internal capacity throughout, ought to expose a surface to the action of the draught greater by not less than six inches than the flues up to its throat.

Our tradesmen here generally are so defective in education, that I believe but very few of them capable of making the necessary calculations to carry out this system; but a Mr. D. Brodie, an engineer, now deceased, to whom I explained my views on this subject, told me that he had carried out my principle to the letter, in superintending the hanging of a set of sugar-pans, and three of A. and W. McOnie and Co.'s 30-inch tube steam-boilers, each about 29 feet long, on the flue of two megas furnaces, with double teaches, on plantation Aurora, then under my attorneyship; and it is a well known fact, that that battery acts more efficiently than any other job of the kind yet done in the colony, and with much greater economy of fuel. In fact, except on Monday mornings until the coppers are fairly at work, the steam-boilers work a 15-horse high pressure steam-engine, of A. and W. McOnie and Co.'s, most efficiently, without one particle of any other description of fuel than the megas consumed in the sugar-pan furnaces; and which, without the steam-boilers, would have been consumed by the same furnaces for the manufacture of sugar alone. Independent of working the engine, steam is almost always blowing off in quantity from the boilers, so that I am quite satisfied that they produce waste steam enough to work a set of clarifiers.

Previous to this system having been adopted, there used to be consumed on the Aurora, for working a steam-engine alone, between wood and coals, equal to one hogshead of coals for every hogshead of sugar made.

I quite disapprove of the very long tube steam-boilers which have very generally been hung on the flues of the coppers. It stands to reason, that the further they are removed from the furnaces, the less heat they will receive from them; so that the end of a boiler 50 and 52 feet long, as many of them are, can raise but little steam at the end farthest from the furnaces. Much more efficiency in working can unquestionably be secured by much shorter boilers concentrated as near as possible to the furnaces; but in doing this great care must be taken to secure the efficiency of the coppers or sugar-pans, as well as the steam-boilers.

Of all things connected with the working of estates, a wise and prudent economy is the most important; and economy of labour stands in this respect pre-eminent. In order to accomplish this great object, it is quite necessary for a manager of an estate to make himself acquainted with the individual character of every labourer placed under him, and his qualifications for the different descriptions of labour; as by this means only will he know how to place "the right man in the right place;" without which much labour must be lost, and much work badly performed.

There is very great advantage derived from a concentration of labour, more particularly in the field, because an overseer and foreman can look after a concentrated gang of 70 or 80 people; whereas, if such a gang was to be divided into several gangs, in different fields, it would be impossible for the overseer and foreman to attend to them, and to see to the quality of the work being well performed, which is a matter of paramount importance: besides which it would, with a divided gang, be much more difficult to keep a correct account of the quantum of work performed by each individual; which must, of course, regulate the amount of wages to be paid to him. Independent of all this, I have found that when labour is concentrated in masses, the people work with much better spirit; owing, I believe, mainly to thus seeing their own strength and power to perform the work.

It is unfortunate for us in British Guiana, that the different castes of labourers with which we have to deal don't amalgamate well, so that we have to make separate gangs of each. The coolies are generally best employed at weeding and moulding, the Creole men at shovel work, the women at weeding and moulding, and the Africans at cutting canes and shovel work; the Portuguese mostly in cutting canes and cutting fuel-wood, and the Chinese in weeding and moulding and cane-cutting. If these castes would amalgamate kindly, labour could be better concentrated and more cheaply performed.

Much labour is frittered away in dividing labourers into a variety of gangs; and I am sorry to add that, in general, economy of labour does not meet with that study and attention which its importance so richly deserves. This is, I fear, owing to the reckless system pursued in former days, when labour was abundant; a remnant of the old leaven still remaining adhering to a few antiquarians and their disciples. This feeling, however, is fast giving way to the practice of a wiser and better policy in all departments of management.

Maintaining in good working condition the working stock of quadrupeds on an estate, is also a matter of importance and economy; and for this purpose care ought always to be taken that whenever the animals are at rest, they should have a sufficient supply of provender and water before them. The leaves of the cane top cut up, or the green leaves of the bamboo, or the small seed or black seed grasses, or the para grass, are all very good food for working cattle; and a half-puncheon with molasses and water, placed contiguous to their food, will maintain them in good condition.

Cattle are frequently injured from bad collars. I have found collars made of plaited dry plantain leaves to be by much the best and most economical; and any one of ordinary capacity may learn how to make them in a single day. Such a collar only costs the labour of the maker, the material being at hand on almost every estate; and a man can make at least two or three of them in a day, after a little practice.

Iron punts for the transport of canes were very much run upon here for a series of years, but I find wooden punts to be more economical; the water in the canals honeycombs the iron, and destroys the bottoms of the iron punts in a very few years.

The most economical description of steam-boiler in the consumption of fuel which I have yet seen used, is the Cornish boiler.

The Carron sugar-pans have long been considered the best, and I still believe them to be so. The vacuum-pan of Shears and Co., of London, is that in most general use here; but I prefer Leischman and Welsh's, which are substantial and well finished.

With regard to the form of the works or manufactory of a sugar estate, much will depend on the fancy or taste of the proprietor. I prefer placing the curing-house, boiling-house, and engine-house, in a straight range under one roof; the curing-house to windward, the engine-house to leeward, and the boiling-house between the two. The separation of the boiling-house from the curing-house should be a close partition, to keep the steam of the former from entering the latter, and also to keep the curing-house close, and at a high temperature. Great convenience is experienced by keeping these under one roof.

The distillery I prefer to be in a distinct building, in order to lessen the risk from fire. I would place it at a distance of 50 feet from the curing-house, and end on to that building: the windward side of the distillery running in a line with the windward end of the curing-house.

In the erection of a distillery, it is of importance in this climate to make it as cool as possible, but without causing a draft on the vats: "cow mouths" in the roof are desirable.

The megas logees ought to be placed to leeward of all the other buildings. As it is always necessary to keep a stock of coals on an estate for the use of the steam-engine, a coal shed in which the coals ought to be kept is a measure of economy; because, under cover from the weather, coals in bulk are better preserved, and hogsheads filled with coals are preserved from the injury which they invariably sustain by exposure to the weather here: in their hoops particularly, which very soon rot by such exposure.

It is of much importance at all times narrowly to watch the state of the buildings on an estate, and at all events to keep them free of vermin, and weather tight. The wood ants are most destructive in this colony to all wooden buildings, and it requires persevering attention to keep such buildings free of them, and to poison them as near to the root of their tracts as possible, with a mixture of dry sugar and arsenic. According to the old adage, "a stitch in time saves nine," and whenever decay appears in a building it ought to be repaired immediately.

The comfort and healthfulness of the dwellings provided on estates for the accommodation of every individual employed on them, is a matter of the first importance. A dry locality, well ventilated, and weather-tight lodgings, are essentially necessary for the preservation of health in all climates; but this is more particularly the case in this colony, and, in truth, in all tropical climates. Many a life has been sacrificed in British Guiana from the selection of unhealthy localities for dwellings, more particularly among the European population. No doubt this has generally proceeded from errors in judgment, but these have been fatal errors, and too often attended with most melancholy results. Dwellings of every description ought to be placed on the highest and driest situations which can be selected, contiguous to, but to windward of the sugar works: at all events, in a position not to be affected by the miasma arising from the offal remaining in the process of manufacture, mixed up, as it invariably is, in the half stagnant water remaining in the surrounding trenches, which I am satisfied is a fruitful but unavoidable source of disease.

Independent of all considerations of humanity, which must powerfully influence every well regulated mind, I do not know of any one measure that works more beneficially for the interests of proprietors than securing comfortable and healthy accommodation for every individual employed on their properties. Nothing renders the people more contented and happy than proper attention to this great comfort. It saves an immensity of labour by preserving them in health; and by the preservation of health the managers, overseers, and foremen are enabled to give their constant attention to their duties, in seeing that every description of work is well and efficiently performed, and that the wages of labour are fairly and honestly apportioned.

I consider it good management at all times to keep the dams or thoroughfares on an estate clean and in good order; attending to this, adds greatly to the health and comfort of every individual employed on a plantation. When the dams are neglected and allowed to grow up in grass and weeds, in the mornings, at all times, when the overseers and field labourers go to work, the grass and weeds are wet with dew; and at such times, whether in wet weather or dry weather, these people, in walking to their daily labour, generally get soaking wet up to their knees. This frequently causes sickness and loss of labour, and a knowledge of this often induces labourers to skulk from their work, and to sham sickness. Independently of all this, it is quite necessary to keep all dams clean which are exposed to the pressure of external water, such as front dams, back dams, &c., so that any leaks in them may be discovered early, and thus prevent breaches and inundations.

When a breach in a front dam or back dam does take place, not a moment should be lost in making it up again, as, if neglected, it will constantly be getting larger. A breach in a back dam is even a more serious affair than it is in a front dam, because the external, or, as it is called, bush-water, remains at the same level; whereas, with a front dam, the sea or river ebbs and flows, so that advantage can be taken of the falling tide to stop a breach efficiently.

With a breach in a back dam, the first thing to be done is to run a strong pauling across the breach outside, with two very strong beams to support the pauls, to be well entered in the solid dam on either side of the breach, and there secured by strong stakes driven on either side of them; and these beams must also be supported by strong posts at the centre. This being done, get as many coarse bags (such as rice bags) without delay, fill them up with clay, and throw them outside of the pauling as fast as possible, until you get them about five inches above the level of the external water—this will prevent any further run of water through the breach; then fill up the breach with the stiffest clay to be conveniently had, commencing so to fill up next to the pauling; cut into the dam in the centre on either side to the extent of about 6 feet—say 6 feet wide at the top, and to a depth a little under the depth of the breach—and let this space be well rammed up with the stiffest clay; the object of this cut is to give the new ground a good hold of the solid dam on either side, which if neglected to be done, the water would probably find its way through between the new ground and the old. A similar pauling must be run inside of the dam to that made on the outside, and then the space between the two sets of pauling ought to be speedily filled up with clay some 8 inches above the level of the old dam, and well rammed and puddled.

A substantial repair of this kind is not likely to give any further trouble; and the same process may be observed in repairing a breach in a front dam or side dam.

Bamboos are exceeding useful on a sugar estate, whether as food for horses and mules, or for fuel; the tender twigs and leaves of the green bamboos are about the best green food for working cattle, and the stems, when dry and cut in proper lengths, make capital fuel for any purpose. I, however, disapprove entirely of the system formerly pursued of planting them on dams, because they much obstruct the thoroughfare, and they generally spread so much as to shade the neighbouring canes, and thus injure their growth; I therefore recommend bamboos to be planted in a field by themselves, contiguous to and to leeward of the sugar works, both for the convenience of feeding the stock, and for their transport as fuel.

One of the greatest evils which the planter has to contend with here, is the almost total absence of any active sense of moral obligation on the part of the great bulk of the labouring population, more particularly among the coolies and negroes. These people are addicted to the vices of thieving and lying to an extent that is fearful to contemplate; and hence entire confidence never can be placed in the great majority of them by their employers. There are indeed some few honourable exceptions, but they are (I regret to add) "few and far between."

The Portuguese, on their first arrival here, were not so much addicted to these vices, but the lower classes of them, owing to their extreme ignorance, are, I fear, beginning to be contaminated by the bad example shown by their compeers. The Chinese are a very immoral set of people; so that, on the whole, we have to deal with a very degraded body of labourers.

I do not think that the Established clergy of every denomination throughout the colony, with a very few honourable exceptions, do their duty by these people, as I consider Christian ministers ought to do; they certainly do not follow the glorious example set them by "the meek and lowly Jesus," of whom they ought to be followers. They have in their power, if they choose to exert themselves, to do a vast deal of good to these ignorant people, by constant industry in instilling their minds with principles of religion and morality; these, however, cannot be accomplished by one or two sermons from the pulpit on the sabbath day, because nineteen out of twenty of their congregations are totally incapable of comprehending the intent and meaning of such sermons. No! the minister of the Gospel, in order to accomplish the conversion of such sinners, must go amongst them in their private dwellings, and address them in their own language—more particularly in seasons of family afflictions; as it is on such occasions that the minds of people are most open to receive the consolations of the Gospel, and to be made sensible of the duties which they owe to God and to man.

The system of education at present pursued in the colony I conceive to be very faulty, and there unfortunately exists a great want of good schoolmasters. The men most likely to be useful as teachers to the great bulk of the population do not, in my opinion, require a high qualification in education: we want men of good moral and religious character, sufficiently learned to teach the English language, the simple rules of arithmetic and writing; and, above all, men who will show a good example in their own conduct, in all that concerns religion and morality. They may give precept on precept of the very best description to their scholars, but if these precepts be not acted up to in their own conduct they will be worthless. One good example forcibly illustrated is worth a dozen precepts.

The surest means of reforming and of creating a spirit of industry and well-doing in the minds of the labouring population and the rising generation here are, in my humble opinion, by the exertions of the clergy in the manner described, and by the employment of a competent class of schoolmasters, to be placed under the surveillance of the clergy and the vestries of the respective parishes; but, in order to be efficient, the work must be gone into at once, and "with a will;" and the duly constituted authorities must neither be allowed to "slumber nor to sleep" until the good work be accomplished.

With regard to the higher branches of education, the richer portion of the community cannot be at a loss: they can either send their children to Europe for education, or they can have them educated at the Collegiate Grammar School here. Besides which, there are several other schools in George Town, presided over by competent masters, who teach all but the highest branches of learning.

Since writing the foregoing, during a period of sickness in the month of October last, my remarks as to the total absence of all sense of moral obligation in the minds of the great bulk of the labouring population in British Guiana, have been sadly verified.

During the 19th and 20th of February of this present 1856, a furious riot of the Creole and African black population took place throughout the rural districts from one end of the colony to the other. They broke in by violence to almost every Portuguese shop, and rifled them completely of their contents; either wantonly destroying the goods, or stealing them for their own purposes, in defiance of all law and authority. It is not for me, in such a treatise as this, to give any opinion as to the causes which gave rise to this violent outbreak; nor would it be proper in me to speculate on the future consequences of this most unprovoked outrage by one class of the community against another; and I only notice it to strengthen the position which I have assumed, in reference to what I consider to be the special duties of the ministers of religion.

I say to the ministers of the Established Churches throughout the length and breadth of the land, Be up and doing, else you may rely on it that a day of terrible retribution will overtake you.

I have ventured thus freely to express myself, because I feel a very warm interest in the prosperity of a splendid colony, in which I have passed the greater portion of my life; and I most sincerely and conscientiously believe that this prosperity can be best secured by instilling the principles of religion and morality into the minds of the ignorant masses, by means of the clergy, and by a well-regulated course of rudimentary education among them, through the instrumentality of well-disciplined schoolmasters, of unexceptionable character. I must at the same time admit, that a vast deal of good may be done to improve the morals of the masses, by all persons placed in responsible situations over them, in settting them a good example in their own persons and conduct.

Evening family devotion would do much good in this way; and if every manager of an estate would read a chapter of the Bible every evening, read a prayer, and sing a psalm, in his own family or house, inviting all his domestics to attend, as well as the foremen placed under him, I am certain that it would have a most salutary effect on the minds of the labourers, and on their general conduct; and it would, besides, add much to the respectability and estimation of the manager in the minds of the people, and cause his orders to be more cheerfully obeyed.

INDEX.

PAGE
Books, Estates 53
Buildings or sugar works 60
Canals, &c. 14
Cane, cultivation of 25
Cane plants, disadvantages of cutting in wet weather 28
———————— remedy to avoid . 28
——— periods for reaping 27
——— selection of 23
Clarification of cane juice 36
Clergy and schoolmasters 65
Climate 8
Coffee, cultivation and manufacture of 47
Colony, situation of 7
Cotton, cultivation and manufacture of 48
Cultivation, general area of 8
Dams, making of; and taking in new land 19
Distillery 43
Drainage 10
Draught for furnaces, regulation of 55
Economy, great importance of 57
Engines, steam, and their connections 36
Estates, forms of; and levels of land 18
Fallowing land, benefit of 34
Hospital, attention to, and to patients 51
Labourers and their habits 9
Machinery substituted for labour 52
Manuring 29
Pans—sugar, vacuum, Gadesden 41

PAGE
Plantains, cultivation of 49
Population 7
Punts 59
Rivers and ports 7
Rollers, revolutions of........ 54
Roots, edible 50
Shed for coals, timber, &c. 61
Sluices, or kokers........ 15
Soil, fertility of........ 34
Stills 45
Stock, live working 59
Sugar, manufacture of........ 35
Trash of cane, burning of 30
Wages, payment of most important........ 51

London: Printed by Smith, Elder & Co., 15, Old Bailey.

June, 1856.

A Catalogue
OF
NEW AND STANDARD WORKS,
PUBLISHED BY

SMITH, ELDER AND CO.,
65, CORNHILL, LONDON.

Works in the Press.

THE LIFE AND CORRESPONDENCE OF SIR JOHN MALCOLM, G.C.B. By JOHN WILLIAM KAYE. *Two Volumes, 8vo. With Portrait.*

SIGHT-SEEING IN GERMANY AND THE TYROL, IN THE AUTUMN OF 1855. By SIR JOHN FORBES, Author of "A Physician's Holiday," &c.

LETTERS TO BEGINNERS IN ART. By JOHN RUSKIN, M.A.

ENGLAND IN TIME OF WAR. By the Author of "Balder," "The Roman," &c. *In One Volume.*

THE TREATMENT OF THE INSANE, Without Mechanical Restraints. By JOHN CONOLLY, M.D. *Demy 8vo.*

YOUNG SINGLETON. By TALBOT GWYNNE, Author of "The School for Fathers," "Silas Barnstarke," "Nanette and her Lovers," &c. *In Two Volumes.*

KATHIE BRANDE: THE FIRESIDE HISTORY OF A QUIET LIFE. By HOLME LEE, Author of "Gilbert Massenger," "Thornley Hall," "Maude Talbot," &c. *In Two Volumes.*

New Works.

ANNALS OF BRITISH LEGISLATION,

A Classified Summary of Parliamentary Papers.

EDITED BY PROFESSOR LEONE LEVI.

The Yearly Issue will consist of 1000 pages super royal 8vo, the subscription for which is Two Guineas, payable in advance. The successive parts will be delivered post free, and to subscribers only.

PARTS I. *and* II. *are now ready.*

"It would not be easy to over-estimate the utility of Professor Levi's serial. It has the merit of being an excellent idea zealously carried out."—*Athenæum.*

"We cannot imagine a more truly valuable and nationally important work than this. It is impossible to over-estimate its usefulness."—*Civil Service Gazette.*

"Such a work is much needed. The first part seems to be well done."—*Economist.*

SIGNS OF THE TIMES:

BEING

LETTERS ON THE DANGERS TO RELIGIOUS LIBERTY IN THE PRESENT DAY.

BY THE CHEVALIER BUNSEN.

TRANSLATED BY MISS SUSANNA WINKWORTH.

One Volume, 8vo, price 16s. cloth.

"An investigation of the religious principles at work in the Christian world; tracing, as far as modern politics extend, the action of priesthood, associations, and secular decrees enforcing spiritual dogmas. The argument, through which an unvarying eloquence breathes, is developed in an imposing range of epistles, based upon an experience of men and a knowledge of history possessed by few of the author's contemporaries, and illuminated by that clear and generous philosophy which all who know him attribute to Christian Charles Bunsen. * * * It is the most remarkable work that has appeared in modern times from the pen of a statesman."—*Leader.*

THE CHINESE AND THEIR REBELLIONS,

WITH AN ESSAY ON CIVILIZATION.

BY THOMAS TAYLOR MEADOWS.

One Thick Volume, 8vo, with Maps, price 18s. cloth.

"This instructive volume conveys with clearness and accuracy the true character of the social and political institutions of China, and the customs and manners of the Chinese: it affords a complete compendium of the Chinese Empire. The whole of the political geography and administrative machinery of the empire is described, and the theory and practical working of the Chinese aristocracy."—*Observer.*

THE RED RIVER SETTLEMENT.

BY ALEXANDER ROSS, Author of "Fur-Hunters of the Far West."

One Volume, post 8vo, price 10s. 6d. cloth.

"The history of the Red River Settlement is remarkable, if not unique, among colonial records."—*Literary Gazette.*

"The subject is novel, curious, and not without interest, while a strong sense of the real obtains throughout. The story is that of a small colony some forty-five years old; including famine, frost, snow, flood, the plague of birds, grasshoppers, or locusts, mice, with an attack of severe pestilence."—*Spectator.*

New Works.

THE POLITICAL LIFE OF SIR R. PEEL.

BY THOMAS DOUBLEDAY,

Author of the "Financial History of England," "The True Law of Population," &c.

Two Volumes, 8vo, price 30s. cloth.

"Let all readers, before they take in hand the personal memoirs of Sir Robert Peel, peruse these volumes of Mr. Doubleday: in them the statesman's character and public acts are analysed in the spirit neither of a detractor nor of a panegyrist. This biography is a work of great merit, conscientiously prepared, plain, clear, and practically interesting."—*Leader.*

"The merits of Mr. Doubleday's book are neither few nor inconsiderable. His honesty and completeness of research are very commendable, and constitute a great recommendation of his work. * * * In presenting a candid and truthful picture of the political career of the great conservative statesman, Mr. Doubleday has been eminently successful. We can conscientiously commend the results of his labours to the attentive study of all who feel an interest in the subject."—*Daily News.*

"The work possesses a good deal of interest. The reader is enabled to retrace the leading events of the best part of fifty years. The author is plain, shrewd, homely, and generally sound in his opinions and judgments."—*Spectator.*

"It has been the aim of the author to unfold causes as well as effects, and to make the work a key to the history of England from 1809, when Sir Robert Peel entered the House of Commons, to the day of his death."—*New Quarterly Review.*

"This book is the work of an impartial writer. The politician will make it a text book, the biographer his model."—*Weekly Dispatch.*

"This work is deservedly entitled to be called a Key to the History of England from 1809."—*Observer.*

"A good book of its kind, well worth reading, and very pleasantly and sensibly written."—*Saturday Review.*

THE EUROPEAN REVOLUTIONS OF 1848.

BY EDWARD CAYLEY.

Two Volumes, Crown 8vo, price 18s. cloth.

"A graphic, compendious, and popular narrative of by far the most deeply interesting series of events that have occurred in our time, of which no collective résumé can anywhere else be found which is at once so condensed and so readable as that here supplied by Mr. Cayley."—*Daily News.*

"Two instructive volumes. The work deserves credit not less for the labour and care bestowed upon its compilation, than for the fairness and impartiality with which the facts are stated."—*Observer.*

"Mr. Cayley has evidently studied his subject thoroughly; he has consequently produced an interesting and philosophic history of an important epoch."—*New Quarterly Review.*

"Mr. Cayley's narrative is not only perspicuous but vivid: his style is always vigorous and telling."—*Literary Gazette.*

"An honest contribution to history by a thoughtful observer."—*Sun.*

"Two eloquent volumes of rare value to the student of history: the moderation of tone and unobtrusiveness of opinion enhance their worth."—*Weekly Dispatch.*

"The best *résumé* of the late revolutionary epoch to be found in the language."—*Sunday Times.*

TWO SUMMER CRUISES WITH THE BALTIC FLEET IN 1854-5;

BEING THE LOG OF THE "PET."

BY R. E. HUGHES, M.A.

Second Edit., Post 8vo, with Views and Charts. 10*s.* 6*d.*, *cloth.*

"There are few readers to whom this volume will not be welcome. It is light and pleasant reading, and conveys not a little valuable information. Few unprofessional men are so capable of forming a judgment on naval tactics as Mr. Hughes appears to be."—*Economist.*

"The stamp of veracity is on every sentence of this book—not only the intention to speak the truth, and nothing but the truth, but the capacity of perceiving facts and not falsehoods."—*Spectator.*

"A smart, lively, interesting book, the perusal of which may cause many a smile, while it conveys a vast amount of information in the most unpretending and agreeable style."—*Observer.*

Works of Mr. Ruskin.

I.

MODERN PAINTERS, Vol. IV.

BY JOHN RUSKIN, M.A.,

Imperial 8vo, with Thirty-five Illustrations engraved on Steel, and 116 Woodcuts, drawn by the Author, price 2l. 10s. cloth.

"Of all the volumes which Mr. Ruskin has issued, there is probably none that exhibits his two counterbalancing faculties of speculation and observation in a state of such intense activity. * * * If the reader's entertainment flags, his deference for the author's immense study and knowledge of natural phenomena, and for his consqnent judgement in art matters, must rise considerably. He will find that it is not without reason, not without labour and preparation and experiment, that Ruskin claims to *know* when nature is truthfully or untruthfully rendered. * * * Considered as an illustrated volume, this is the most remarkable which Mr. Ruskin has yet issued. The plates and woodcuts are profuse, and include numerous drawings of mountain form by the author, which prove Mr. Ruskin to be essentially an artist. Keen sight, keen feeling, and keen power of expression are the qualities which go to the making of an artist, and all these Mr. Ruskin possesses. He adds to them a peculiarly subtle turn for theory, investigation and exposition. This combination makes him an unique man, both among artists and writers."—*Spectator.*

"The present volume of Mr. Ruskin's elaborate work treats chiefly of mountain scenery, and discusses at length the principles involved in the pleasure we derive from mountains and their pictorial representation. The author is more philosophical and less critical than before. Mr. Ruskin is establishing what he considers to be true principles, and only casually notices adversaries who advocate theories which contradict his own. The work is essentially positive, and we have less negation than we are accustomed to meet with in treatises by this author. There is less declamation and more proof. Mr. Ruskin does not wish the reader to adopt his conclusions merely on his authority. He labours diligently to give evidence of 'the faith that is in him.' Mr. Ruskin occupies a peculiar position as a writer. He compels his most vehement adversaries to admire even while they dissent. The singular beauty of his style, the hearty sympathy with all forms of natural loveliness, the profusion of his illustrations, and above all the earnest denunciation of cant, form irresistible attractions. You may quarrel with the critic, but you cannot fail to admire the writer and respect the man. High thoughts, clothed in eloquent language, are the characteristics of Mr. Ruskin's productions. * * * * * * The present volume contains the most connected exposition of the author's theory which he has yet given to the world."—*Daily News.*

"All art is one, and Mr. Ruskin writes of painting with the ever present consciousness of poetry, sculpture and architecture, as equally implied. This it is which gives the wide and permanent charm to his writings. Interesting as they are to painters, they almost equally fascinate the general public, because in them may be read rare criticisms of natural appearances and of artistic representations. * * * We must all feel subdued by his eloquence, enlightened by his novel views, stimulated by his thoughts, instructed by his accurate observations of nature. Such a writer is really a national possession. He adds to our store of knowledge and enjoyment."—*Leader.*

II.

MODERN PAINTERS, Vol. III.

With Eighteen Illustrations drawn by the Author, and engraved on Steel, price 38s. cloth.

"This book may be taken up with equal pleasure whether the reader be acquainted or not with the previous volumes, and no special artistic culture is necessary in order to enjoy its excellences or profit by its suggestions. Every one who cares about nature, or poetry, or the story of human development—every one who has a tinge of literature or philosophy, will find something that is for him in this volume."—*Westminster Review.*

"Mr. Ruskin's third volume of 'Modern Painters' will be hailed with interest and curiosity, if not with submissive attention, by the Art-world of England. * * * Mr. Ruskin is in possession of a clear and penetrating mind; he is undeniably practical in his fundamental ideas; full of the deepest reverence for all that appears to him beautiful and holy, and, though owning to very strong preferences, founding those preferences on reason. * * * His style is, as usual, clear, bold, and racy. Mr. Ruskin is one of the first writers of the day."—*Economist.*

"The present volume, viewed as a literary achievement, is the highest and most striking evidence of the author's abilities that has yet been published. It shows the maturity of his powers of thought, and the perfection of his grace of style."—*Leader.*

"All, it is to be hoped, will read the book for themselves. They will find it well worth a careful perusal. This third volume fully realizes the expectations we had formed of it."—*Saturday Review.*

Works of Mr. Ruskin.

III.

MODERN PAINTERS.

Imperial 8*vo. Vol. I. Fifth Edition,* 18*s. cloth.*
Vol. II. Fourth Edition, 10*s.* 6*d. cloth.*

"Mr. Ruskin's work will send the painter more than ever to the study of nature; will train men who have always been delighted spectators of nature, to be also attentive observers. Our critics will learn to admire, and mere admirers will learn how to criticise: thus a public will be educated."—*Blackwood's Magazine.*

"A generous and impassioned review of the works of living painters. A hearty and earnest work, full of deep thought, and developing great and striking truths in art."—*British Quarterly Review.*

"A very extraordinary and delightful book, full of truth and goodness, of power and beauty."—*North British Review.*

IV.

THE STONES OF VENICE.

Now complete in Three Volumes, Imperial 8*vo, with Fifty-three Plates and numerous Woodcuts, drawn by the Author.*

Price 5*l.* 15*s.* 6*d., in embossed cloth, with top edge gilt.*

EACH VOLUME MAY BE HAD SEPARATELY, VIZ.—

Vol. I. The Foundations, *with* 21 *Plates, price* 2*l.* 2*s.*
Vol. II. The Sea Stories, *with* 20 *Plates, price* 2*l.* 2*s.*
Vol. III. The Fall, *with* 12 *Plates, price* 1*l.* 11*s.* 6*d.*

"This book is one which, perhaps, no other man could have written, and one for which the world ought to be and will be thankful. It is in the highest degree eloquent, acute, stimulating to thought, and fertile in suggestion. It shows a power of practical criticism which, when fixed on a definite object, nothing absurd or evil can withstand; and a power of appreciation which has restored treasures of beauty to mankind. It will, we are convinced, elevate taste and intellect, raise the tone of moral feeling, kindle benevolence towards men, and increase the love and fear of God."—*Times.*

"The 'Stones of Venice' is the production of an earnest, religious, progressive, and informed mind. The author of this essay on architecture has condensed into it a poetic apprehension, the fruit of awe of God, and delight in nature; a knowledge, love, and just estimate of art; a holding fast to fact and repudiation of hearsay; an historic breadth, and a fearless challenge of existing social problems, whose union we know not where to find paralleled."—*Spectator.*

"No one who has visited Venice can read this book without having a richer glow thrown over his remembrances of that city, and for those who have not, Mr. Ruskin paints it with a firmness of outline and vividness of colouring that will bring it before the imagination with the force of reality."—*Literary Gazette.*

"This work shows that Mr. Ruskin's powers of composition and criticism were never in greater force. His eloquence is as rich, his enthusiasm as hearty, his sympathy for all that is high and noble in art as keen as ever. The book, like all he writes, is manly and high-minded, and, as usual, keeps the attention alive to the last."—*Guardian.*

V.

THE SEVEN LAMPS OF ARCHITECTURE.

Second Edition, with Fourteen Plates drawn by the Author.
Imperial 8*vo,* 1*l.* 1*s. cloth.*

"By the 'Seven Lamps of Architecture,' we understand Mr. Ruskin to mean the seven fundamental and cardinal laws, the observance of and obedience to which are indispensable to the architect, who would deserve the name. The politician, the moralist, the divine, will find in it ample store of instructive matter, as well as the artist. The author of this work belongs to a class of thinkers of whom we have too few among us."—*Examiner.*

"Mr. Ruskin's book bears so unmistakeably the marks of keen and accurate observation, of a true and subtle judgment and refined sense of beauty, joined with so much earnestness, so noble a sense of the purposes and business of art, and such a command of rich and glowing language, that it cannot but tell powerfully in producing a more religious view of the uses of architecture, and a deeper insight into its artistic principles."—*Guardian.*

"A lively, poetical, and thoughtful book; rich in refined criticism and glowing eloquence. Mr. Ruskin's poetry is always to the purpose of his doctrines, and always the vehicle of acute thought and profound feeling."—*Fraser's Magazine.*

Works of Mr. Ruskin.

VI.

LECTURES ON ARCHITECTURE AND PAINTING.

With Fourteen Cuts drawn by the Author. Second Edition.
Crown 8vo, price 8s. 6d. cloth.

"Mr. Ruskin's Lectures—eloquent, graphic, and impassioned—exposing and ridiculing some of the vices of our present system of building, and exciting his hearers by strong motives of duty and pleasure to attend to architecture—are very successful; and, like his former works, will command public attention. His style is terse, vigorous, and sparkling, and his book is both animated and attractive."—*Economist.*

"We conceive it to be impossible that any intelligent persons could listen to the lectures, however they might differ from the judgments asserted, and from the general propositions laid down, without an elevating influence and an aroused enthusiasm, which are often more fruitful in producing true taste and correct views of art than the soundest historical generalizations and the most learned technical criticism in which the heart and the senses own no interest."—*Spectator.*

VII.

NOTES ON THE PRINCIPAL PICTURES EXHIBITED AT THE ROYAL ACADEMY, AND THE SOCIETY OF PAINTERS IN WATER COLOURS. No. II.—1856.

Fifth Edition, with Postscript. 8vo, price 6d.

VIII.

PRE-RAPHAELITISM.

8vo, 2s. sewed.

"We wish that this pamphlet might be largely read by our art-patrons, and studied by our art-critics. There is much to be collected from it which is very important to remember."—*Guardian.*

IX.

THE OPENING OF THE CRYSTAL PALACE:

Considered in some of its relations to the Prospects of Art.
8vo, price 1s., sewed.

"An earnest and eloquent appeal for the preservation of the ancient monuments of Gothic architecture."—*English Churchman.*

"A wholesome and much needed protest."—*Leader.*

X.

THE KING OF THE GOLDEN RIVER;

OR, THE BLACK BROTHERS.

With 22 Illustrations by RICHARD DOYLE. *2s. 6d.*

"This little fairy tale is by a master hand. The story has a charming moral, and the writing is so excellent, that it would be hard to say which it will give most pleasure to, the very wise man or the very simple child."—*Examiner.*

XI.

EXAMPLES OF THE ARCHITECTURE OF VENICE,

SELECTED AND DRAWN TO MEASUREMENT FROM THE EDIFICES.

In Parts of Folio Imperial size, each containing Five Plates, and a short Explanatory Text, price 1l. 1s. each.

PARTS I. TO III. ARE PUBLISHED.

Fifty India Proofs only are taken on Atlas Folio, price 2l. 2s. each Part.

Recent Works.

SERMONS. By the late REV. FRED. W. ROBERTSON,

A.M., Incumbent of Trinity Chapel, Brighton.

FIRST SERIES—*Second Edition, Post 8vo, price 9s. cloth.*

SECOND SERIES—*Second Edition, price 9s. cloth.*

"Mr. Robertson, of Brighton, is a name familiar to most of us, and honoured by all to whom it is familiar. A true servant of Christ, a bold and heart-stirring preacher of the Gospel, his teaching was beautified and intensified by genius. New truth, new light, streamed from each well-worn text when he handled it. The present volume is rich in evidence of his pious, manly, and soaring faith, and of his power not only to point to heaven, but to lead the way."—*Globe.*

"We should be glad if all preachers more united with ourselves preached such sermons as those contained in this volume."—*Christian Remembrancer.*

"Very excellent sermons, full of earnest piety and love to God, and throwing light on many difficulties in Holy Scripture."—*Morning Chronicle.*

"They are very beautiful in feeling, and occasionally striking and forcible in conception to a remarkable degree."—*Guardian.*

SELECTIONS FROM THE PAPERS OF THE LATE LORD METCALFE.

Edited by JOHN WILLIAM KAYE. *Demy 8vo, price 16s. cloth.*

"We commend this volume to all persons who like to study state papers, in which the practical sense of a man of the world is joined to the speculative sagacity of a philosophical statesman. No Indian library should be without it."—*Press.*

THE FIBROUS PLANTS OF INDIA

FITTED FOR CORDAGE, CLOTHING, AND PAPER.

BY DR. J. FORBES ROYLE. *8vo, price 12s. cloth.*

"A work in every way worthy of the high reputation which the author bears."—*Press.*

FOUR YEARS AT THE COURT OF HENRY VIII.:

Being a Selection of the Despatches of SEBASTIAN GIUSTINIAN, Venetian Ambassador, 1515-1519.

Translated by RAWDON BROWN. *Two Vols., crown 8vo,* 21*s.*, *cloth.*

"These volumes present such a portrait of the times as is nowhere else to be found. They are a most important contribution to the materials for history."—*Quarterly Review.*

A CAMPAIGN WITH THE TURKS IN ASIA.

BY CHARLES DUNCAN. *Two Vols., post 8vo,* 21*s. cloth.*

"These volumes contain an account of a winter residence at Erzeroum, a sojourn with the Turkish army at Kars, including the campaign of 1854, and journeys to and from Constantinople *via* Trebizond. The novelty of the scenes and characters, the picturesque sketches of the Turkish army, and the solid information which is scattered through the book, render the volumes of present interest and of importance as a future record."—*Spectator.*

THE FUR-HUNTERS OF THE FAR WEST.

BY ALEX. ROSS, Author of "Adventures in the Columbia River."

Two Volumes, post 8vo. With Maps and Plates. 21*s. cloth.*

"Many accounts of hardships and adventures with savage men and beasts will be found in these volumes. There are some striking sketches of landscape and Indian life and character, as well as a great deal of information about the old Fur Trade. The book is of considerable value as a picture of an almost past mode of human existence, as well as for its information upon the Indians of Oregon."—*Spectator.*

Recent Works.

RUSSO-TURKISH CAMPAIGNS OF 1828-9.

BY COL. CHESNEY, R.A., D.C.L., F.R.S. *Third Edition.*
Post 8*vo, with Maps, price* 12*s. cloth.*

"The only work on the subject suited to the military reader."—*United Service Gazette.*

MILITARY FORCES AND INSTITUTIONS OF GREAT BRITAIN.

BY H. BYERLEY THOMSON, of the Inner Temple. 8*vo*, 15*s. cloth.*

"Such a book is much wanted, and it contains a great mass of information on military topics, now undergoing daily discussion."—*Economist.*

A MANUAL OF THE MERCANTILE LAW OF GREAT BRITAIN AND IRELAND.

BY PROFESSOR LEONE LEVI, Author of "Commercial Law of the World." 8*vo., price* 12*s. cloth.*

"We recommend to all merchants and tradesmen, and to all who are studying great questions of social reform, this Manual of Mercantile Law. Its simplicity and faithfulness make it an extremely serviceable book."—*Examiner.*

THE LAWS OF WAR AFFECTING COMMERCE AND SHIPPING.

BY H. BYERLEY THOMSON, of the Inner Temple. *Second Edition, greatly enlarged.* 8*vo, price* 4*s.* 6*d. boards.*

Works of Mr. Thackeray.

LECTURES ON THE ENGLISH HUMOURISTS OF THE 18TH CENTURY.

BY W. M. THACKERAY,
Author of "Vanity Fair," "The Newcomes," &c.
Second Edition. Crown 8*vo, price* 10*s.* 6*d. cloth.*

"To those who attended the lectures, the book will be a pleasant reminiscence, to others an exciting novelty. The style—clear, idiomatic, forcible, familiar, but never slovenly; the searching strokes of sarcasm or irony; the occasional flashes of generous scorn; the touches of pathos, pity, and tenderness; the morality tempered but never weakened by experience and sympathy; the felicitous phrases, the striking anecdotes, the passages of wise, practical reflection; all these lose much less than we could have expected from the absence of the voice, manner, and look of the lecturer."—*Spectator.*

ESMOND. By W. M. THACKERAY.

Second Edition, 3 *vols., Crown* 8*vo, reduced to* 15*s. cloth.*

"Mr. Thackeray has selected for his hero a very noble type of the cavalier softening into the man of the eighteenth century, and for his heroine one of the sweetest women that ever breathed from canvas or from book, since Raffaelle painted and Shakspeare wrote. The style is manly, clear, terse, and vigorous, reflecting every mood—pathetic, graphic, or sarcastic—of the writer."—*Spectator.*

THE ROSE AND THE RING; OR, THE HISTORY OF PRINCE GIGLIO AND PRINCE BULBO.

BY MR. M. A. TITMARSH.
With 58 *Cuts drawn by the Author.* 3*rd Edition, price* 5*s.*

New Novels.

I.

PERVERSION;

Or, The Causes and Consequences of Infidelity.

A Tale for the Times. In 2 vols.

CONTENTS.

Chap. 3.—The German Teacher.
Chap. 6.—Life in Barracks.
Chap. 7.—Prophets unveiled.
Chap. 8.—Tutors and Undergraduates.
Chap. 9.—Ultra-Protestants of the Town.
Chap. 11.—Anglo-Catholics of the Suburb.
Chap. 12.—Free Thought at Oxford.
Chap. 18.—A Mormon Menage.
Chap. 19.—The Champions of Progress.
Chap. 22.—Attorney and Client.
Chap. 23.—The Trial.
Chap. 26.—The Island of the Blest.
Chap. 28.—Doubt and Faith.
Chap. 29.—From Darkness to Light.
Chap. 30.—Death at Scutari.

"'Perversion' is powerful as a composition. There is a good deal of matter derived from an observation of society, and an interest in the questions of the day; there is a knowledge of life, especially as it exists in schools, the universities, the parish, and the classes connected with education and religion. The thoughts of the writer are well presented, with the power of unconscious mastery which his training gives to the scholar; an unflagging energy sustains the writer from first to last."—*Spectator.*

"This work is extremely clever. It is intended to show the different phases that infidelity assumes, and to trace the practical result in their different social manifestations. The book is well and temperately written. The story has a touching interest, which lingers with the reader after he has closed the book. There is no attempt at eloquence or fine writing; the style is rigidly simple but firm and strong."—*Athenæum.*

"The tale is designed to illustrate some of the phases of modern infidelity, and in the various characters introduced it is shown how infidelity is developed. The description of the college life of Archer, and of the influence by which he was led to become an avowed infidel, is full of instruction and warning. There are entertaining scenes of life at school, in barracks, at college, among the Mormons, and in what is called the religious world. It really deserves to be called 'A Tale for the Times,' and is the ablest novel that has appeared for many a day."—*Literary Gazette.*

II.

ERLESMERE; or, Contrasts of Character.

By L. S. Lavenu. In 2 vols.

(*Now ready.*)

III.

BEYMINSTRE.

By the Author of "Lena," "King's Cope," &c. 3 vols.

"We have still some good novel writers left, and among them is the author of 'Beyminstre.' This novel reminds us, in many respects, of Madame D'Arblay's 'Cecilia' in the felicitous delineation of character, the accurate descriptions of life, and the skilful management of the dialogues. The conduct of the story is excellent. Many of the subordinate parts are highly comic; an air of nature and life breathes through the whole. It is a work of unusual merit."—*Saturday Review.*

"There are admirable points in this novel, and great breadth of humour in the comic scenes. 'Beyminstre' is beyond all comparison the best work by the author."—*Daily News.*

"The characters are interesting, the plot possesses originality, the dialogue a great deal of spirit and liveliness, and the interest is maintained to the end."—*Sun.*

"There is not a dull page in the work."—*Globe.*

"A really admirable novel, abounding in character."—*Press.*

IV.

LEONORA. By the Hon. Mrs. Maberly. 3 vols.

"In the story of 'Leonora' Mrs. Maberly has described the career of an ambitious, beautiful, but unprincipled woman. Many of the scenes are drawn with great skill, and lively sketches of fashionable life are introduced."—*Literary Gazette.*

New Novels.

V.

AFTER DARK. BY WILKIE COLLINS,

Author of "Basil," "Hide and Seek," &c. 2 vols.

"A series of tales supposed to be told to a portrait-painter by his sitters; the frame-work tells us how he came to think of publishing the stories thus collected; the introductions describe the circumstances under which the tales were told. These portions have a delicate every-day interest. The tales are stories of adventure, well varied, and often striking in the incidents, or with thrilling situations; and are as pleasant reading as a novel reader could desire."—*Spectator*.

"Mr. Wilkie Collins takes high rank among the few who can invent a thrilling story, and tell it with brief simplicity. The power of commanding the faculties of his readers is exercised in nearly all these stories."—*Globe*.

"Mr. Wilkie Collins possesses a rare faculty: *l'art de conter*. No man living better tells a story. He has been happy in his choice of a thread whereon to string the pearls: we feel an independent interest in it, and read it almost as eagerly as the stories themselves."—*Leader*.

"Mr. Wilkie Collins stands in the foremost ranks of our younger writers of fiction. He tells a story well and forcibly, his style is eloquent and picturesque, he has considerable power of pathos, understands the art of construction, and has a keen insight into character."—*Daily News*.

"The volumes abound with genuine touches of nature."—*British Quarterly Review*.

"These stories possess all the author's well-known beauty of style and dramatic power."—*New Quarterly Review*.

VI.

AMBERHILL. BY A. J. BARROWCLIFFE. 2 vols.

"There is great power in 'Amberhill,' and its faults are forgotten in the sustained excitement of the narrative. There are in the book some of the shrewdest sketches of character we have ever met with. If we suppose the story to be the work of an artist, the leading characters to be imagined, and her whole career from first to last to be shaped by design, we must regard it as a wonderful work of creative genius."—*Press*.

"'Amberhill' is an exciting book, not belonging to any established school of novel, unless it be the defiant. There is a freshness and force, a petulant grace, and a warm-hearted satirical vein in 'Amberhill,' which will give it a charm to every *blasé* novel reader. The characters are vigorously drawn and have genuine life in them."—*Globe*.

"There is talent and vigour about this work; we welcome it, in spite of the morbid and painful interest of the story. The story is told with great energy and some eloquence. If the author will cultivate her talents, she may produce something far better than 'Amberhill.'"—*Athenæum*.

"'Amberhill' appears to be intended as a lesson against weakness of character, over-lust of wealth, and disregard of religion. The writer has one great quality for fiction, that of commanding the attention of the reader."—*Spectator*.

"This is a striking and remarkable story, with great originality of plot and vivid delineation of character, drawn by a vigorous hand. The style is earnest and often eloquent, the characters are distinctly drawn, and the interest unflagging."—*Sun*.

"A moving tale, fluently told. * * * All the characters are clearly brought out, and several of them have the distinctness and vividness of personal portraits."—*Saturday Review*.

VII.

MAURICE ELVINGTON:

OR, ONE OUT OF SUITS WITH FORTUNE. AN AUTOBIOGRAPHY.

Edited by WILFRID EAST. 3 vols.

"A very powerfully wrought story. Passion, pathos, and tragedy are mingled with artistic skill; and in its development throughout it cannot be too warmly eulogized, nor too liberally recommended."—*Weekly Dispatch*.

"A story of English life in a variety of phases, which can scarcely fail to interest the English reader."—*Examiner*.

"A careful study of modern life and manners, written in a pointed scholarly style. . . . . It is a work of talent."—*Leader*.

Novellettes.

GILBERT MASSENGER. By Holme Lee,

6s. cloth.

"One of the best *novellettes* we have seen. The whole tone of the book is healthy; the sentiments are just and right, and the feelings always beautiful, gentle, and true; the delineation of character is clear, and the style is fresh, flowing, simple, and correct."—*Economist.*

"The subject is handled with singular delicacy and truthfulness."—*Examiner.*

"A condensed and powerfully written story."—*Athenæum.*

"A work of remarkable skill and power."—*Spectator.*

"The story enthrals and edifies the reader."—*Globe.*

THORNEY HALL. By Holme Lee. 6*s*. *cloth.*

"There is much quiet power evinced in 'Thorney Hall,' combined with a thoroughly healthy and invigorating tone of thought. It develops the practical heroism that lies in the most unromantic duties of daily life. The story is extremely interesting."—*Athenæum.*

"Few who read this tale but will feel that they are reading something true, and that they have known the characters."—*Guardian.*

"A story which sustains to the end so unflagging an interest that few will leave it unfinished." —*Morning Chronicle.*

MY FIRST SEASON. By Beatrice Reynolds.

Edited by the Author of "Charles Auchester" and "Counterparts."

10*s*. 6*d*. *cloth.*

"A very well-written story, ingenious in its construction, bold and vigorous in its delineation of character, graphic in its descriptive passages, and 'as full of spirit as the monthof May.'" —*Morning Post.*

"The story is ingenious, spirited, and well developed; the dialogue sparkles with talent, and the pages are crowded with satirical sketching, and close, clever presentations of life and character, drawn with artistic skill."—*Press.*

A LOST LOVE. By Ashford Owen. 10*s*. 6*d*. *cloth.*

"A tale at once moving and winning, natural and romantic, and certain to raise all the finer sympathies of the reader's nature. Its deep, pure sentiment, admirable style and composition, will win for it a lasting place in English fiction, as one of the truest and most touching pictures ever drawn of woman's love."—*Press.*

"'A Lost Love' is a story full of grace and genius."—*Athenæum.*

"A striking and original story; a work of genius and sensibility."—*Saturday Review.*

"A novel of great genius."—*New Quarterly Review.*

Miss Kavanagh's Works.

WOMEN OF CHRISTIANITY EXEMPLARY FOR PIETY AND CHARITY.

Post 8vo, with Portraits, price 12s. in embossed cloth, gilt edges.

"A more noble and dignified tribute to the virtues of her sex we can scarcely imagine than this work, to which the gifted authoress has brought talents of no ordinary range, and, more than all, a spirit of eminent piety."—*Church of England Quarterly Review.*

WOMAN IN FRANCE during the 18th CENTURY.

2 vols. Post 8vo, with Eight Portraits, 12s. in embossed cloth.

"Miss Kavanagh has undertaken a delicate task, and she has performed it on the whole with discretion and judgment. Her volumes may lie on any drawing-room table without scandal, and may be read by all but her youngest countrywomen without risk."—*Quarterly Review.*

GRACE LEE. By Julia Kavanagh.

3 vols. Post 8vo, price 31s. 6d. cloth.

"A remarkable fiction, abounding in romantic incidents."—*Morning Post.*

Works of Currer Bell.

VILLETTE. BY CURRER BELL.

New Edition, in One Volume, Crown 8vo, 6s. cloth.

"This novel amply sustains the fame of the author of 'Jane Eyre' and 'Shirley' as an original and powerful writer."—*Examiner.*

SHIRLEY. BY CURRER BELL.

Crown 8vo, 6s. cloth.

"The peculiar power which was so greatly admired in 'Jane Eyre' is not absent from this book. It possesses deep interest, and an irresistible grasp of reality. There are scenes which, for strength and delicacy of emotion, are not transcended in the range of English fiction."—*Examiner.*

JANE EYRE. BY CURRER BELL.

Fifth Edition. Crown 8vo. 6s. cloth.

"'Jane Eyre' is a remarkable production. Freshness and originality, truth and passion, singular felicity in the description of natural scenery, and in the analysation of human thought, enable this tale to stand boldly out from the mass, and to assume its own place in the bright field of romantic literature."—*Times.*

WUTHERING HEIGHTS AND AGNES GREY.

BY ELLIS AND ACTON BELL.

With a Biographical Notice of both Authors, by CURRER BELL.

Crown 8vo, 6s. cloth.

POEMS. By CURRER, ELLIS, and ACTON BELL.

4s. cloth.

Talbot Gwynne's Fictions.

NANETTE AND HER LOVERS.

Crown 8vo, 5s. cloth.

"We do not remember to have met with so perfect a work of literary art as 'Nanette' for many a long day; or one in which every character is so thoroughly worked out in so short a space, and the interest concentrated with so much effect and truthfulness."—*Britannia.*

THE LIFE AND DEATH OF SILAS BARNSTARKE.

Crown 8vo, 5s. cloth.

"A story possessing an interest so tenacious that no one who commences it will easily leave the perusal unfinished."—*Standard.*

"A book of high aim and unquestionable power."—*Examiner.*

THE SCHOOL FOR FATHERS.

Crown 8vo, 5s. cloth.

"The pleasantest tale we have read for many a day. It is a story of the *Tatler* and *Spectator* days, and is very fitly associated with that time of good English literature by its manly feeling, direct, unaffected manner of writing, and nicely managed, well-turned narrative. The descriptions are excellent; some of the country painting is as fresh as a landscape by Constable, or an idyll by Alfred Tennyson."—*Examiner.*

THE SCHOOL FOR DREAMERS.

Crown 8vo, 5s. cloth.

"A powerful and skilfully-written book, intended to show the mischief and danger of following imagination instead of judgment in the practical business of life."—*Literary Gazette.*

Oriental.

THE BHILSA TOPES; or, BUDDHIST MONUMENTS OF CENTRAL INDIA.

BY MAJOR CUNNINGHAM.

One Volume, 8vo, with Thirty-three Plates, price 30*s. cloth.*

"Of the Topes opened in various parts of India none have yielded so rich a harvest of important information as those of Bhilsa, opened by Major Cunningham and Lieut. Maisey; and which are described, with an abundance of highly curious graphic illustrations, in this most interesting book."—*Examiner.*

TRAVELS AND ADVENTURES IN ASSAM.

BY MAJOR JOHN BUTLER.

One Volume 8*vo, with Plates, price* 12*s. cloth.*

"This volume is unusually successful in creating an interest on an Eastern subject. It is illustrated by views of landscapes, figures and antiquities."—*Press.*

"Fourteen years' residence among the half-civilized natives have given the author—whose powers of observation, penetration, and analysis are of no ordinary kind—ample opportunities of studying the character of the Hill tribes of Assam."—*Britannia.*

THE ENGLISH IN WESTERN INDIA;

Being the Early History of the Factory at Surat, of Bombay.

BY PHILIP ANDERSON, A.M.

Second Edition, 8*vo, price* 14*s. cloth.*

"Quaint, curious, and amusing, this volume describes, from old manuscripts and obscure books, the life of English merchants in an Indian Factory. It contains fresh and amusing gossip, all bearing on events and characters of historical importance."—*Athenæum.*

"A book of permanent value."—*Guardian.*

A TRACK CHART OF THE COAST OF WESTERN INDIA, on Mercator's Projection.

COMPILED BY LIEUTENANT FERGUSSON, Hydrographer to the Indian Navy.

Two Sheets Atlas paper, price 15*s.*

INFANTICIDE IN WESTERN INDIA.

BY JOHN WILSON, D.D., F.R.S.

Demy 8*vo, price* 12*s.*

"Dr. Wilson's volume contains a luminous exposition of the whole subject, which it examines from every point of view."—*Athenæum.*

JOURNAL OF THE SUTLEJ CAMPAIGN.

BY JAMES COLEY, M.A. *Fcap.* 8*vo, price* 5*s. cloth.*

"Frankness is the main characteristic of Mr. Coley's Journal. He lays bare the practical irreligion of India with an undissembling pen."—*Spectator.*

CRAWFURD'S GRAMMAR & DICTIONARY OF THE MALAY LANGUAGE.

2 *vols.* 8*vo,* 36*s. cloth.*

ROBERTS'S INDIAN EXCHANGE TABLES.

8*vo. Second Edition, enlarged, price* 10*s.* 6*d. cloth.*

Miscellaneous.

SWAINSON'S LECTURES ON NEW ZEALAND.
Crown 8vo, price 2s. 6d. cloth.

PLAYFORD'S HINTS FOR INVESTING MONEY.
Second Edition, post 8vo, price 2s. 6d. cloth.

A VISIT TO SEBASTOPOL AFTER ITS FALL.
Fcap., price 1s.

SIR JOHN FORBES' MEMORANDUMS IN IRELAND.
Two Vols., post 8vo, price 1l. 1s. cloth.

BALDER. A Poem. By the Author of "The Roman."
2nd Edition, with Preface by the Author. 1 vol. cr. 8vo, 7s. 6d. cloth.

MELLY'S SCHOOL EXPERIENCES OF A FAG.
Post 8vo, price 7s. cloth.

DOINE; or, The National Legends of Roumania.
Translated by E. C. GRENVILLE MURRAY, Esq.
With Specimens of the Music. Crown 8vo, 7s. 6d. cloth, or 9s. cloth gilt.

LEIGH HUNT'S AUTOBIOGRAPHY.
3 vols., post 8vo, 15s. cloth.

——————— MEN, WOMEN, AND BOOKS.
2 vols., 10s. cloth.

——————— TABLE TALK. *3s. 6d. cloth.*

——————— WIT AND HUMOUR. *5s. cloth.*

——————— IMAGINATION AND FANCY. *5s. cl.*

——————— A JAR OF HONEY FROM MOUNT HYBLA. *5s. cloth.*

LAURIE'S PEGU. *One thick volume, post 8vo, with numerous Plans and Views, price 14s. cloth.*

BOYD'S TURKISH INTERPRETER: A Grammar of the Turkish Language. *8vo, price 12s.*

BRIDGNELL'S INDIAN COMMERCIAL TABLES OF WEIGHTS, MEASURES, AND MONEY. *Royal 8vo, price 21s., half-bound.*

SMALL'S MERCANTILE TABLES OF BENGAL PRODUCE. *4to, price 2l. 10s. cloth.*

THE BOMBAY QUARTERLY REVIEW.
Nos. 1 to 5, *price 5s. each.*

BAILLIE'S LAND TAX OF INDIA. According to the Moohummudan Law. *8vo, price 6s. cl.*

BAILLIE'S MOOHUMMUDAN LAW OF SALE. *8vo, price 14s. cloth.*

Miscellaneous.

IRVING'S THEORY AND PRACTICE OF CASTE. *8vo, price 5s. cloth.*

DR. ROYLE ON THE CULTURE AND COMMERCE OF COTTON IN INDIA. *8vo, 18s. cloth.*

GINGELL'S CEREMONIAL USAGES OF THE CHINESE. *Imperial 8vo, price 9s. cloth.*

SMYTH'S HISTORY OF THE REIGNING FAMILY OF LAHORE. *With Portraits. 8vo, 12s.*

SIR JOHN HERSCHEL'S ASTRONOMICAL OBSERVATIONS MADE AT THE CAPE OF GOOD HOPE. *4to, with Plates, price 4l. 4s. cloth.*

DARWIN'S GEOLOGICAL OBSERVATIONS ON CORAL REEFS, VOLCANIC ISLANDS, AND ON SOUTH AMERICA. *8vo, with Maps, Plates, and Woodcuts, 10s. 6d. cloth.*

LEVI'S COMMERCIAL LAW OF THE WORLD. *Two Vols., Royal 4to, price 6l. cloth.*

JUVENILE DELINQUENCY. By M. HILL and C. F. CORNWALLIS. *Post 8vo, price 6s. cloth.*

DOUBLEDAY'S TRUE LAW OF POPULATION. *Third Edition, 8vo, 10s. cloth.*

SWAINSON'S ACCOUNT OF AUCKLAND. *Post 8vo, with a View and Coloured Map, 6s. cloth.*

McCANN'S ARGENTINE PROVINCES, &c. *Two Vols., Post 8vo, with Illustrations. Price 24s. cloth.*

TRAITS OF AMERICAN INDIAN LIFE. *Post 8vo, 7s. cl.*

ROWCROFT'S TALES OF THE COLONIES. *Fifth Edition. 6s. cloth.*

GOETHE'S CONVERSATIONS WITH ECKERMANN. Translated by JOHN OXENFORD. *2 Vols. post 8vo, 10s. cl.*

CHORLEY'S MODERN GERMAN MUSIC. *Two Vols., Post 8vo, price 21s. cloth.*

DALLAS'S POETICS: AN ESSAY ON POETRY. *Crown 8vo, price 9s. cloth.*

THE INSURRECTION IN CHINA. By Dr. YVAN and M. CALLERY. Translated by JOHN OXENFORD. *Third Edit. Post 8vo, with Chinese Map and Portrait, 7s. 6d. cl.*

Miscellaneous.

HUGHES'S DUTIES OF JUDGE ADVOCATES. *Post 8vo, 7s. cloth.*

KESSON'S CROSS AND THE DRAGON; or, The Fortunes of Christianity in China. *Post 8vo, 6s. cloth.*

POEMS. By William Bell Scott. *Foolscap 8vo, with Three Plates, price 5s. cloth.*

POEMS. By Walter R. Cassels. *Foolscap 8vo, price 3s. 6d. cloth.*

GARLANDS OF VERSE. By Thomas Leigh. *Foolscap 8vo, 5s. cloth.*

THE BRITISH OFFICER; his Position, Duties, Emoluments, and Privileges. By J. H. Stocqueler. *Post 8vo, 15s. cloth extra.*

THE NOVITIATE; or, The Jesuit in Training. By Andrew Steinmetz. *Third Edition. Post 8vo, 5s. cloth.*

A CONVERTED ATHEIST'S TESTIMONY TO THE TRUTH OF CHRISTIANITY. *Fourth Edition. Foolscap 8vo, price 3s. cloth.*

THE RECTORY of VALEHEAD. By the Rev. R. W. Evans. *Fourteenth Edition. 3s. cloth.*

PARENTS' CABINET of Amusement and Instruction. *In volumes, each complete in itself, 2s. 6d.*

LITTLE STORIES from the Parlour Printing Press. By the Author of the "Parents' Cabinet." *2s. cloth.*

ELEMENTARY WORKS ON SOCIAL ECONOMY. *Uniform in Foolscap 8vo, half-bound.*

I.—OUTLINES OF SOCIAL ECONOMY. 1*s.* 6*d.*
II.—PROGRESSIVE LESSONS IN SOCIAL SCIENCE. 1*s.* 6*d.*
III.—INTRODUCTION TO THE SOCIAL SCIENCES. 2*s.*
IV.—QUESTIONS AND ANSWERS on the Arrangements and Relations of Social Life. 2*s.* 6*d.*
V.—OUTLINES OF THE UNDERSTANDING. 2*s.*
VI.—WHAT AM I? WHERE AM I? WHAT OUGHT I TO DO? &c. 1*s.* sewed.

GREEN'S BRITISH MERCHANTS' ASSISTANT.

CONTAINING:—

Part I.—TABLES OF SIMPLE INTEREST at 3, 3½, 4, 4½, and 5 per cent.
Part II.—TABLES OF INTEREST ON EXCHEQUER BILLS, at from 1½*d.* to 3½*d.* per cent. per diem.
Part III.—TABLES OF ENGLISH & FOREIGN STOCK, BROKERAGE, COMMISSION, FREIGHT, INSURANCE, &c.

Royal 8vo, 1l. 11s. 6d. cloth. (*Each part may be had separately.*)

London: Printed by Smith, Elder & Co., 15, Old Bailey.